ADVISORY GROUP FOR AEROSPACE RESEARCH & DEVELOPMENT

7 RUE ANCELLE 92200 NEUILLY SUR SEINE FRANCE

AGARD ADVISORY REPORT No. 138

Experimental Data Base for Computer Program Assessment

Report of the Fluid Dynamics Panel Working Group 04

DISTRIBUTION STATEMENT A

Approved for public releases

Distribution Unlimited

DDC PEDEMARI SEP 20 1979

NORTH ATLANTIC TREATY ORGANIZATION



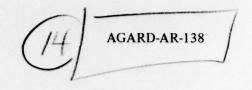
DISTRIBUTION AND AVAILABILIT ON BACK COVER

79 hg





THIS DOCUMENT IS BEST QUALITY PRACTICABLE. THE COPY FURNISHED TO DDC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.



NORTH ATLANTIC TREATY ORGANIZATION

ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT

(ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD)

(9) Advisory rept.

AGARD Advisory Report No.138

EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT,

REPORT OF THE FLUID DYNAMICS PANEL
WORKING GROUP 04

J May 79/

(12) 612p.

THE MISSION OF AGARD

The mission of AGARD is to bring together the leading personalities of the NATO nations in the fields of science and technology relating to aerospace for the following purposes:

- Exchanging of scientific and technical information;
- Continuously stimulating advances in the aerospace sciences relevant to strengthening the common defence posture;
- Improving the co-operation among member nations in a rospace research and development;
- Providing scientific and technical advice and assistance to the North Atlantic Military Committee in the field of aerospace research and development;
- Rendering scientific and technical assistance, as requested, to other NATO bodies and to member nations in connection with research and development problems in the aerospace field;
- Providing assistance to member nations for the purpose of increasing their scientific and technical potential;
- Recommending effective ways for the member nations to use their research and development capabilities for the common benefit of the NATO community.

The highest authority within AGARD is the National Delegates Board consisting of officially appointed senior representatives from each member nation. The mission of AGARD is carried out through the Panels which are composed of experts appointed by the National Delegates, the Consultant and Exchange Programme and the Aerospace Applications Studies Programme. The results of AGARD work are reported to the member nations and the NATO Authorities through the AGARD series of publications of which this is one.

Participation in AGARD activities is by invitation only and is normally limited to citizens of the NATO nations.

The content of this publication has been reproduced directly from material supplied by AGARD or the authors.

Published May 1979

Copyright © AGARD 1979 All Rights Reserved

ISBN 92-835-1323-1



Printed by Technical Editing and Reproduction Ltd Harford House, 7–9 Charlotte St., London, WIP 1HD

PREFACE

The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability.

To aid in the development and refinement of computational methods and to improve their applicability and compatibility an EXPERIMENTAL DATA BASE was established, presenting selected test results and detailed geometric descriptions of representative airfoil, wing, wing-body and body-alone configurations. In addition, the basic limitations of the available data as well as suggestions for future tests designed to reduce these limitations are discussed in detail.

Professor Dr. J.BARCHE Chairman Fluid Dynamics Panel Working Group 04

| DC TAB mammounced ustification | |
|--------------------------------------|--------|
| | 1 1 |
| ustification_ | Second |
| | |
| ЗУ | |
| distribution/ | |
| Availability (| Codes |
| Availand | |
| ist special | 1 |
| 1 23 | |
| 11 | |

CONTENTS

| | Page |
|---|------------|
| PREFACE | |
| by J.Barche | iii |
| | Reference |
| INTRODUCTION AND OVERVIEW OF CONFIGURATIONS by J.Barche | 1 |
| LIMITATIONS OF AVAILABLE DATA by T.W.Binion | 2 |
| RECOMMENDATIONS FOR FUTURE TESTING by K.G.Winter and L.H.Ohman | 3 |
| CONCLUDING REMARKS by J.Barche | 4 |
| APPENDIX A – 2-D CONFIGURATIONS by J.Sloof | |
| | A0 |
| NACA 0012 AIRFOIL by J.J.Thibert, M.Grandjacques and L.H.Ohman | Al |
| NLR QE 0.11 - 0.75 - 1.375 AIRFOIL by NLR and NAE | A2 |
| SUPERCRITICAL AIRFOIL CAST 7 SURFACE PRESSURE, WAKE AND BOUNDARY LAYER MEASUREMENTS by E.Stanewsky, W.Puffert, R.Muller and T.E.B.Bateman | A3 |
| NLR 7301 AIRFOIL by NLR Amsterdam | A 4 |
| AIRFOIL SKF 1.1. WITH MANEUVER FLAP by E.Stanewsky and J.J.Thibert | A5 |
| AEROFOIL RAE 2822 — PRESSURE DISTRIBUTIONS, AND BOUNDARY LAYER AND WAKE MEASUREMENTS by P.H.Cook, M.A.McDonald and M.C.P.Firmin | A6 |
| PRESSURE DISTRIBUTIONS FOR AIRFOIL NAE 75-036-113: 2 AT REYNOLDS NUMBERS FROM 14 TO 30 MILLION | |
| by NAE/NRC SUPERCRITICAL AIRFOIL MBB-A3-SURFACE PRESSURE DISTRIBUTIONS. | A7 |
| WAKE AND BOUNDARY CONDITION MEASUREMENTS by G.Bucciantini, M.S.Oggiano and M.Onorato | A8 |
| EXPERIMENTAL INVESTIGATION OF A 10 PERCENT THICK NASA SUPERCRITICAL AIRFOIL SECTION by C.D.Harris | A9 |
| APPENDIX B — 3-D CONFIGURATIONS by P.J.Bobbitt | во |
| PRESSURE DISTRIBUTIONS ON THE ONERA-M6-WING AT TRANSONIC MACH NUMBERS | |
| by V.Schmitt and F.Charpin | B1 |
| TRANSONIC MEASUREMENTS ON THE 'ONERA AFV D' VARIABLE SWEEP WING IN THE 'ONERA S2 MA' WIND TUNNEL by F.Manie and J.C. Raynal | В2 |

| | Reference |
|--|-----------|
| MBB-AVA PILOT-MODEL WITH SUPERCRITICAL WING-SURFACE PRESSURE AND FORCE MEASUREMENTS | |
| by H.Körner, W.Lorenz-Meyer, A.Heddergott and A.Eberle | В3 |
| PRESSURE DISTRIBUTION MEASURED IN THE RA 8ft x 6ft TRANSONIC WIND TUNNEL ON RAE WING "A" IN COMBINATION WITH AN AXI-SYMMETRIC BODY AT MACH NUMBERS OF 0.4, 0.8 and 0.9 | |
| by D.A.Treadgold, A.F.Jones and K.H.Wilson | B4 |
| PRESSURE DISTRIBUTIONS MEASURED ON AN NASA SUPERCRITICAL-WING RESEARCH AIRPLANE MODEL | |
| by C.D.Harris and D.W.Bartlett | B5 |
| APPENDIX C – BODY-ALONE CONFIGURATIONS by T.W.Binion | CO |
| 1.5 D OGIVE – CIRCULAR CYLINDER BODY, L/D = 21.5 by K.Hartmann | Cl |
| MBB- BODY OF REVOLUTION NO.3 by W.Lorenz-Meyer and F.Aulehla | C2 |
| PRESSURE DISTRIBUTION DATA FOR A 10° CONE-CYLINDER AT ZERO INCIDENCE IN THE MACH NUMBER RANGE 0.91 to 1.22 | С3 |
| by the High Speed Aerodynamics Laboratory NAE/NRC | C3 |
| ONERA CALIBRATION MODEL C5 by X.Vaucheret | C4 |

3

without the design

A.4.8

1. INTRODUCTION AND OVERVIEW OF CONFIGURATIONS

by

Jürgen Barche

DFVLR-AVA, Bunsenstr. 10, D-3400 Göttingen

1.1 Objectives and Scope of Work

The well-known economical advantages of applying transonic flow technology to aircraft design has created a world-wide interest in methods predicting and analysing such flows. Consequently, a large number of computer codes exist today reflecting past and present theoretical and numerical standards in the solution of the basic flow equations. Since proof of validity and refinements of computational methods are primarily based on experimental results, erros inherent to data generated by any individual test facility may easily enter a computational method thus restricting its general applicability and compatibility.

To improve the applicability of transonic technology to practical aircraft design the AGARD Fluid Dynamics Panel (FDP) established the Specialist Working Group WG 04:

EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT

with the

OBJECTIVES

"To assess, screen and identify the highest quality 2-D (section) and 3-D (wing-body) data available, particularly in the transonic speed regime, which is urgently needed as reference data in the development and refinement of costly computer programs for aircraft design. Data will be analysed with consideration for relevancy to geometric configurations suitable for analytic comparison needs, test instrumentation, procedures, conditions, corrections, and adequacy of range of test variables."

As a consequence of the urgent need for the Data Base a period of only one year was given the Group to accomplish its task. To guide the Working Group FDP defined the

SCOPE OF WORK

"The Group will recommend at the earliest possible date the best 2-D and 3-D data available, if acceptable as a base data set, and provide detailed geometric descriptions of models. The Group will define required additional testing to establish adequacy of and confidence in the data. A programme of action will be recommended including which facilities should be utilized to obtain the needed data in an expedient manner without excessive demands on any one country or facility. The final selected data will be published as an AGARD report."

1.2 Group Members and Meetings

To assess, screen and identify the highest quality data available for the Data Base and to assemble these data into a final report specialists in theoretical and experimental transonic flow research have been nominated by the delegates of the Fluid Dynamics Panel. The WG thus formed had the following members:

| T.W. Binion | ARO-AEDC | USA |
|----------------|--------------------|-------------|
| G. Bucciantini | Aeritalia | Italy |
| P.J. Bobbitt | NASA-Langley | USA |
| H. Körner | DFVLR-Braunschweig | Germany |
| M. Monnerie | ONERA | France |
| L.H. Öhman | NAE | Canada |
| J. Slooff | NLR | Netherlands |
| E. Stanewsky | DFVLR-Göttingen | Germany |
| H. Viviand | ONERA | France |
| K.G. Winter | RAE-Bedford | UK |

The Group was chaired by

J. Barche DFVLR-Göttingen Germany

and assisted by numerous specialists from industry and research institutes of various countries.

To accomplish the tasks two meetings were arranged. The first one was held at AGARD-Head-quartes at Neuilly, France, during Dec. 8 through Dec. 10, 1976. Here evaluation criteria were established, and configurations and data previously submitted by the members were reviewed and a pre-selection carried out according to these criteria. The second meeting was hosted by ONERA at Modane from Sept. 22 through Sept. 24, 1977. Topics of this meeting were the final selection of configurations and data to be included in the Data Base,

recommendations for additional testing on existing and new configurations and the set-up of guide lines and a final time schedule for the preparation of this AGARD report.

1.3 Overview of Configurations

1.3.1 Evaluation and classification

To select the highest quality data from all data submitted by the WG members, a general set of EVALUATION CRITERIA was used covering items related to (see Table 1.1)

- the type of model
- the actual model geometry
- the range of freestream conditions and testing techniques employed, and
- the wind tunnel and instrumentation used in gathering a specific set of data.

The application of the criteria was supported by questionnaires which had to be completed for each configuration submitted. These questionnaires also form the basis for the presentation of all information on models, wind tunnels, test environments, etc. in this report.

To facilitate the selection of data by a potential user, the configurations and associated data analysed and presented here are divided into three categories:

- two-dimensional configurations (airfoils)
- wings and wing-body combinations, and
- · body-alone configurations.

The data for each category are presented in Appendices A, B, and C, respectively, with a "Guide to the data" preceding each set of configurations.

1.3.2 Two-dimensional configurations

The final selection of two-dimensional configurations was based on the criteria listed in Table 1.1 with emphasis, however, placed on the knowledge of

- the transition location
- the magnitude of wall interference corrections and
- the availability of measured boundary conditions, and on
- the number of facilities in which a model was tested.

The model uniqueness was used as an additional criterion of same weight in order to provide a wide range of test cases without, however, disregarding the criteria mentioned above.

The list of two-dimensional configurations finally selected starts with the conventional airfoil NACA 0012 which has been and still is widely used as reference model for the investigation of wall interference effects.

The symmetrical shock-free supercritical airfoil NLR QE 0.11-0.75-1.375, designed by the Nieuwland Hodograph method, was tested specifically to verify experimentally the existence of shock-free supercritical flow.

The CAST 7 is a 12% thick supercritical design of moderate rear loading. The data set for this airfoil includes results from boundary-layer profiles and tunnel wall pressure measurements as well as surface pressures. The NLR 7301 represents with 16.5% the thickest of all supercritical airfoils submitted. For the supercritical configuration SKF 1.1 data with extended maneuver flap are included while for the subcritical design RAE 2822 a set of boundary layer data is provided covering subcritical as well as supercritical local flows with at least one example of shock induced boundary layer separation. For the supercritical airfoil NAE 75-0.36-13.2, designed for low lift, upper and lower wall pressures are included. The MBB A3 is the thinnest airfoil of the set (8.9%); furthermore, the supercritical wing of the 3-D configuration "MBB-AVA Pilot Model" of data set B3 is based on this airfoil. Similarly airfoil 9a, the last in the list of 2-D configurations and a Whitcomb design, is used on the TF-8A supercritical wing research airplane, presented as data set B5.

The airfoils included here together with characteristic geometric parameters and partidular features of a specific data set are listed in Table 1.2; the complete data sets are given in Appendix A.

1.3.3 Three-dimensional configurations

and the second design the second

Due to the increased complexity of testing and computing three-dimensional flows, the number of 3-D configurations found adequate for inclusion into the Data Base was less than the number of 2-D configurations. It is assumed, however, that the five configurations and associated data selected represent a sufficiently wide range of geometries and experimental results to allow an assessment and future refinement of three-dimensional computational methods.

As simplest examples of three-dimensional flows two half-wing models have been included The first one is the low aspect-ratio wing ONERA M6 tested over a wide range of Reynolds numbers. The second, the ONERA AFV-D with a rectangular planform, was tested at sweep angles between zero and 60° with corresponding aspect ratios of 2.7 to 8, respectively. Wing-body interference effects are demonstrated and can be assessed by the results for the wing-fuselage configurations "MBB-AVA Pilot Model" with a wing based on the supercritical airfoil MBB A3 of data set A8 and the "RAE Wing A". Both models represent rather low aspect ratio designs. The supercritical wing research airplane TF-8A - AR = 6.8 - was chosen as an example of a complete model with vertical and horizontal tail. The model was developed for flight-testing a wing based on the Whitcomb supercritical airfoil of data set A9

The three-dimensional configurations included here are listed in Table 1.3; the complete data sets are presented in Appendix B.

1.3.4 Body-alone configurations

It was also felt that experimental results for representative body-alone configurations should be included here. Four configurations were selected. The first, an ogive-circular-cylinder model, represents a typical missile-type body while the second, MBB-AVA Body of Revolution, is more representative of an aircraft fuselage. The latter model was used extensively to investigate the influence of various aft-body shapes on the flow development. The NAE T3, a cone-cylinder model, and the ONERA C5, a body of revolution with a distribution of cross section area representative of a complete transport type aircraft, were extensively used to study wall interference effects.

The body-alone configurations included are listed in Table 1.4; the data sets are given in Appendix C.

EVALUATION CRITERIA

Table 1.1

- TYPE OF MODEL
- Application of data
- Complexity of model
- Type of design pressure destribution
 Pressure gradients in the supersonic region
 Sustained adverse pressure gradients and demand on boundary layer
 Presence of shock waves
 Sensitivity to changes in Reynolds number and location of transition
- Type of geometry
- ACTUAL MODEL GEOMETRY
- Accuracy in determining actual model geometry
- Deviations from desired geometry
- Aeroelastic effects
- RANGE OF FREESTREAM CONDITIONS AND TESTING TECHNIQUE
- Freestream conditions
 Mach number
 Model attitude
 Reynolds number
 Temperature equilibrium
- Testing technique Transition, free or forced Location and type of transition fixing Transition verification
- WIND TUNNEL AND INSTRUMENTATION
- Test section/model size
 Tunnel width/model span
 Tunnel height/chord
 Blockage ratio
 Wall corrections applied
 Flow quality in test section proper
 Length/test section height
 2-D aspect ratio
- Was model tested in other tunnels or in free flight Agreement of results

| | | TWO-DIMENS | TWO-DIMENSIONAL CONFIGURATIONS |
|------------|----------------------------|---|---|
| no. | designation | test facility ¹⁾ | remarks |
| A 1 | NACA 0012 | ONERA S3MA NAE 5x5 ft,2-D insert | conventional symmetrical airfoil, t/c = 12%, widely used to determine wall corrections, high Re-data and W/T wall pressures included |
| A 2 | NLR QE 0.11- 0.75-1.375 | NAE 5x5 ft,2-D insert NLR Pilot Tunnel | shock-free symmetrical airfoil, t/c = 11.7%, high Re-number data included, design Mø = 0.786 (theory) |
| A 3 | CAST 7 | DFVLR 1x1 Meter DFVLR TWB ARA 18"x 8" | shock-free supercritical airfoil, moderate rear loading, $t/c \approx 11.8$, design: Mom = 0.76, C_L = 0.57, wall pressure and boundary layer data included |
| A 4 | NLR 7301 | NLR Pilot Tunnel | aft-loaded shock-free supercritical airfoil, t/c = 16.3%, design (theory): M_{\bullet} = 0.721, C_{L} = 0.60 thickest airfoil of the set |
| A 5 | SKF 1.1 | DFVLR 1x1 Meter ONERA S3MA | supercritical airfoil with maneuver flap, t/c = 12.67%, design: M_{∞} = 0.769, C_L = 0.532, W/T wall pressures included |
| A 6 | RAE 2822 | RAE 8x6 ft | rear loaded, subcritical airfoil, t/c = 12.1%, design: Ma = 0.66, C_L = 0.56, B/L measurements for sub- and supercritical conditions included |
| A 7 | NAE 75-0.36-13:2 | NAE 5x5 ft,2-D insert | low-lift supercritical airfoil, t/c = 13%, design: M_{sb} = 0.75, C_L = 0.36, high Re-data and wall pressures included |
| A 8 | MBB A 3 | ARA 18"x 8" Politecnico Torino(PT) | shock-free supercritical airfoil, t/c = 8.9%, design: Me = 0.75, C _L = 0.58, thinnest airfoil of the set, used on wing of data set B 3, pressure distributions near top and bottom W/T wall included |
| A 9 | Airfoil 9a | NASA-Langley 8 ft | supercritical airfoil, t/c = 10%, design: Me = 0.79, C_L \blacksquare 0.70, airfoil used on TF-8 A supercritical wing research airplane - see data set B 5 - |

1) only facilities for which data are included are listed

| | • / | THREE-DIM | THREE-DIMENSIONAL CONFIGURATIONS |
|-----|-------------------------------------|-----------------------------------|--|
| no. | designation | test facility ¹⁾ | remarks |
| B 1 | ONERA Wing M 6 | ONERA S2 MA | half wing, AR = 3.8, $\Lambda_{\rm LE}$ = 30°, TR = 0.562, peaky profil ONERA D, Re-numbers between 1.5·10 ⁶ and 15·10 ⁶ |
| B 2 | AFV-D Wing | ONERA S2 MA | half wing, rectangular planform, variable sweep $0^{\circ} \le A \le 60^{\circ}$ ARmax = 8, peaky profil ONERA D |
| В 3 | MBB-AVA Pilot Model DFVLR 1x1 Meter | DFVLR 1x1 Meter | wing/body model, AR = 4.5, $\Lambda_{\rm LE}$ = 35°, $\Lambda_{\rm TE}$ = 14.25°, TR = 0.33, wing based on supercritical airfoil MBB-A 3 - see A8 - |
| B 4 | RAE Wing A | RAE 8x6 ft | wing/body model, AR = 6, $\Lambda_{\rm LE}$ = 36.65°, $\Lambda_{\rm TE}$ = 22.34°, TR = 0.33, airfoil RAE 101 |
| B 5 | TF-8 A | NASA-Langley 8 ft Flight tests | wing/body/vertical and horizontal tail, AR = 6.8, $\Lambda_{25} = 42.34^{\circ}$, $\Lambda_{TE} = 35.10$, TR = 0.36, wing based on supercritical airfoil 9a - see A9 - |

1) See foot-note of Table 1.2

Table 1.4

| BODY-ALONE CONFIGURATIONS | remarks | ogive: L = 1.5D,cylinder: L = 20 D, D = 45 mm | cubic fore and aftbody plus cylindrical center part, L = 774 mm, $D_{ma x}$ = 120 mm | 10° cone-cylinder model, overall L/D = 12, D = 127 am | body of revolution with elliptical nose, base diameter: 85.2 mm, max. diameter: 152.7 mm, Ltotal = 1057.8 mm | |
|---------------------------|-----------------|---|--|--|--|--|
| BODY-AL | test facility1) | DFVLR 1x1 Meter | DFVLR 1x1 Meter | NAE 5x5 ft trisonic W/T | Ames 11x11 ft transonic W/T | |
| | designation | 1.5 D-Ogive Circular-Cylinder | MBB-AVA-Body of Revolution No.3 | NAE Calibration Model T3 | ONERA Calibration Model C5 | |
| | no. | c 1 | C 2 | c 3 | C 4 | |

1) See foot-note of Table 1.2

2. LIMITATIONS OF AVAILABLE DATA

by

Travis W. Binion

Sverdrup/ARO, Inc., Arnold Air Force Station, Tennessee 37388

2.1 General Remarks

In making wind tunnel tests at transonic speeds for the purposes of aircraft design, emphasis is placed on the attainment of high Reynolds number in order to approach as near as possible to flight conditions. On the other hand, for the purpose of providing data to assist in the development of calculation methods the test requirements may be considered from a somewhat different point of view. It is quite clear, for the type of pressure distributions associated with modern wing designs, that viscous effects are significant even at full-scale Reynolds numbers; for example, it is not uncommon to find a reduction of as much as 20% in lift for a typical design condition compared to expectations from inviscid flow calculations. It is probably true to say that viscous effects will continue to be an important aspect of all subsonic aerodynamic designs in which the vital function is to decelerate the flow over a surface from the high velocity, which provides the lift, to the maximum pressure recovery at the trailing edge without flow separation. The more rapidly this deceleration can be performed, the greater the extent of the surface over which the lift can be maintained; hence, in general, the most successful design will be the one which achieves the most rapid pressure recovery without separation of the boundary layer. The consequence of this is that boundary-layer growth and its effects will be large. Any worthwhile calculation method will have to include the boundary-layer effects. Thus, for the purposes of validating calculation methods the requirement for achieving high Reynolds number may not be so great. Of course, the Reynolds number must not be so low that the character of the flow is changed, thereby demanding a completely different representation from that at the target full-scale Reynolds numbers at which the calculation methods must aim. In addition, the position of transition must be known.

The other dominant factor requiring attention is the test environment. It is unfortunate that the facilities required for testing at transonic speeds introduce two difficulties. Whereas the use of ventilated tunnels ameliorates the constraint effect of the walls, the precise nature of the boundary conditions at the walls is generally unknown and the fluctuating disturbances introduced into the flow are increased compared with solid walls. Experiments are required in which the constraint effects are not only small--even at the expense of reduced Reynolds numbers, on the basis of the argument above--but in which the boundary conditions are determined directly by flow-field measurements. As far as flow disturbances are concerned the emphasis so far has been placed too strongly on the measurement of pressure fluctuations and insufficiently on the identification, separately, of the vorticity-mode or acoustic-mode of the disturbance field. Further discussion of the various factors which may influence the reliability of the data is given in the following sections. Significant advances have been made in recent years toward a better understanding of some of these effects and further work is in progress.1*

2.2 Flow Non-Uniformity

Spatial velocity and angularity gradients, of course, affect the flow uniformity and could be interpreted as local changes in wing twist or sweep. In general practice, wind tunnels are calibrated with an empty test section by measuring the centerline static pressure distribution from which the centerline Mach number distribution is calculated using an average total pressure measurement from the stilling chamber. Flow angularity is either inferred from upright and inverted model tests or, on occasion, from point measurements made with various types of probes. Rarely, however, are detailed spatial measurements of the velocity and flow angularity fields made in regions occupied by typical models. For most test objectives these presumably small gradients may be of little consequence. For precise data assessment, however, they can be significant. The flow uniformity information which does exist on each of the tunnels is given with the respective data sets.

2.3 Three-Dimensional Effects in Two-Dimensional Tests

The influence of the walls normal to the span (the sidewalls in most instances) has not been studied adequately in two-dimensional (2D) tests. For a lift-curve slope of 2π the simple model of Preston² gives as the downwash correction at the centerline of an airfoil of aspect ratio A, spanning a tunnel of width b, with displacement thickness of the boundary layer on the sidewalls δ^* , as

$$\frac{\Delta \alpha}{\alpha} = -\frac{4}{A} \frac{6^*}{b} \tag{1}$$

WELLINE BETTER THE STORY OF THE STORY OF THE STORY OF THE STORY

^{*}Superscript numbers refer to references listed at the end of each section of the report.

Preston's model does not correspond closely to experiments. The results of Bernard-Guelle 3 and the more recent unpublished work by Chevallier at ONERA have led to an approximate empirical result

$$\frac{\Delta C_{\rm L}}{C_{\rm L}} \approx -3 \frac{\delta^*}{b} \tag{2}$$

which appears to be independent of the airfoil aspect ratio. The result holds only for flow with no strong shock waves. For supercritical flows the magnitude of the constant of proportionality varied rapidly between zero and 8 with angle of attack and Mach number. At present, there is no theoretical basis for a data correction nor any evidence that the empirical corrections devised are directly applicable to other facilities. However, values of the ratio of the displacement thickness of the boundary layer on the sidewall to the semi-width of the tunnel are given in the data sets so that the effect may be evaluated when a reliable method for doing so is devised.

It is known that three-dimensional (3D) effects readily develop in the turbulent boundary layer of flows which are nominally two dimensional. This three-dimensionality is likely to be amplified by interaction with a shock wave or in a separated flow. In a definitive experiment it is, therefore, essential to determine spanwise variations of the boundary-layer properties and to eliminate them if possible. Spanwise variations can arise from variations in transition position caused by irregularities in the free stream, in the airfoil surface, or in a transition trip. For the two cases (A3 and A6) for which boundary-layer results are presented the measurements do not satisfy the simple form of the boundary-layer integral momentum equation. For A3 the discrepancies are irregular; but, for A6, in accordance with boundary-layer experiments for other airfoils, the measured growth of momentum thickness in regions of adverse pressure gradients tends to exceed that calculated from the measured shape parameter, skin friction, and pressure gradient. In the past this type of discrepancy has been variously attributed to the effects of the normal stress terms omitted from the momentum equation, to the effects of normal pressure gradients, or to convergence of the flow. The explanation is not identified in the present data; however, because the measurements are made over an appreciable spanwise extent, flow convergence is unlikely to be the full explanation. It is important that the effect should be explored further in future measurements.

2.4 Support Interference for Complete Model Tests

Examples have been published where major influences of the effect of the model-support sting have been shown on afterbody and tail-surface pressure⁴ and on afterbody drag.⁵ These examples were, however, rather extreme in that the insertion of the sting into the models involved large distortions of the aft end, and the stings passed beneath the tail-planes in fairly close proximity. The configurations (B3, B4, B5) of the present data sets which were sting supported all had relatively large bases and it was not considered necessary to include information on the geometry of the stings.

2.5 Aeroelastic Effects

The term aeroelastic in the context of this report means the <u>static</u> deformation of the test article caused by the aerodynamic loads. The aeroelastic problem is to determine the deformed coordinates and attitude of the test article at the test conditions of interest. The aeroelastic effects can be manifested in the 2D case as spanwise changes in incidence and distortion of the airfoil and in the 3D case as changes in attitude, dihedral, wing twist and chordwise deformations. The deformations are aggravated under conditions of high dynamic pressure, thin wings and swept wings. However, most 2D wind tunnel models are relatively short span and solidly constructed so that aeroelastic deformations are negligible. A possible exception is the thin-trailing-edge, rear-loaded configurations which would be affected by aeroelastic deflection of the rear portion of the airfoil, if it occurs. For 3D models, wing bending, wing twist, and model support deflections can significantly affect the model coordinates and attitude. State-of-the-art correction methods⁶ generally require the specification of stiffness coefficients applicable to the particular configurations. Aeroelastic corrections have been applied to the RAE wing model (B4), and wing-bending data are presented for the NASA F-8A model (B5).

2.6 Flow Unsteadiness

Of the three modes of flow unsteadiness--turbulence, noise, and temperature spottiness-noise appears to be the most important in present transonic wind tunnels. However, the
measurement of turbulence at transonic speeds is not straightforward, and the information
in most transonic tunnels is limited to measurement of pressure fluctuations. Although
there is still no completely reliable method of predicting boundary-layer transition location for the general case with various types of disturbances, it is well established
that tunnel noise does influence transition location, presuming of course transition is
not fixed by mechanical roughness. Hence, for those cases in which the unit Reynolds
number is below about 3 x 107 per meter, noise can have, indirectly, a significant effect
on measured data. The noise influence can perhaps be characterized by an "effective"
Reynolds number for non-laminar boundary layers. Unfortunately, a priori definition of
the proper effective Reynolds number is not yet possible. Much more understanding of
the physice of boundary-layer/turbulence/noise interaction is needed before the effective
Reynolds number concept can be used with confidence for transonic testing. Turbulence/

noise information has been given, when available, for the data presented. It is hoped that at some later date this information may be used to assess the turbulence/noise effects on the data with free transition.

Although there are indications 10,11 that free-stream turbulence can have an influence on attached boundary layers and may affect the conditions for separation onset, neither effect has been fully investigated. There is little evidence to show that noise, after it affects transition location, further affects either the development of the turbulent boundary layer or separation, per se. Experiments dealing with this problem have produced either inconclusive or negative results.12

2.7 Wall Interference

Perhaps the largest unknown in the data presented herein is the effect of wall interference. In classical wall interference theory 13 the wall interference effects were manifested as an incremental velocity (blockage), incidence (upwash), drag (bouyancy), and lift and pitching moment (streamline curvature). The magnitude of the corrections is dependent upon the test section shape, wall geometry, and a model-to-tunnel-size parameter. The theory has been successfully applied to relatively low-speed solid and open wall wind tunnels in which the wall boundary conditions are well known (zero velocity normal to the wall or constant boundary pressure for the solid or open wall, respectively), and the model could be represented by a single vortex or doublet. With the advent of the ventilated wall wind tunnel in the late 1940's, the concept of a homogeneous wall boundary condition was introduced 14,15 in which the discrete wall slots or holes were replaced by an equivalent homogeneous wall. However, independent verification of the homogeneous concept has never been satisfactorily demonstrated even at low speeds.

In those cases in which the theory has been used, the equivalent homogeneous boundary condition was determined numerically to satisfy empirical criteria, i.e., the boundary condition was used as a best-fit constant. Concern about tunnel boundary effects in the transonic speed range has led to a re-examination, in recent years, of the ventilated wall interference at transonic speeds. The results 16 reveal that the boundary condition is a strong function of the wall configuration and the boundary-layer development along the wall. The effect of the wall boundary layer appears so strong that its modification by the model-imposed pressure gradient is significant. Thus, not only is the boundary condition unique for a particular tunnel, it is also unique for the particular model-tunnel combination, 17 and the test conditions, i.e., Mach number, model incidence, and Reynolds number. 18, 19, 20 Since the transonic interference field is dependent upon the model shape, it is not appropriate to represent the model by a single vortex and doublet. The model must be represented by an appropriate distribution of equivalent thickness and lift. Although the test condition bounds are not clear, there are some cases with supercritical flow 18,20 which do appear to be amenable to simple Mach number/incidence corrections. For cases in which the supercritical flow region cannot be considered small with respect to the tunnel dimensions, the corrections are no longer manifested simply as a blockage, bouyancy, upwash, and curvature effects, but as a more complicated distortion of the flow field, 16 which can strongly influence the airfoil shock and separation pattern. In the worst cases there simply is not an equivalent free-air flow condition corresponding to the one the model is subjected to in the wind tunnel.

Unfortunately, precise quantitative assessment of the effects of wall interference in ventilated wind tunnels operating at transonic conditions is beyond the present state-ofthe-art except in those two-dimensional cases in which sufficient measurements have been taken near the tunnel boundaries to allow realistic prescribed boundary conditions to be used.16,18 However, some qualitative information can be obtained from 2D inviscid analyses. TSFOIL developed by Murman, et al., 21 was employed to determine the possible sensitivity to wall interference of several of the airfoil/tunnel/test condition combinations presented herein. The analysis employs a finite difference solution to the transonic small perturbation equation for a 2D flow past a lifting airfoil in free air or with ideal homogeneous boundary conditions at the tunnel wall. It should be emphasized that the method cannot be considered exact because of the small-perturbation assumptions which are expected to be less reliable in a confined than in an unconfined flow. treatment of shock waves is also not correct, no allowance is made for viscous effects, the test section is considered to be infinitely long, and the wall boundary conditions used are idealized for either porous or slotted walls as the case may be. It is convenient to characterize the tunnel boundary condition in terms of an ideal wall interfervenient to characterize the tunnel boundary condition in terms of an ideal wall interference parameter, P, defined such that P=0 corresponds to a solid wall and P=1 corresponds to an open jet. For a slotted wall, P is a function of the tunnel semi-height and the number, width, and spacing of the slots, whereas for a porous wall, P is a function of Mach number, the pressure drop across the wall, and the velocity normal to the wall. Calculations have been made for free air, a solid wall (P=0), P=0.2 which corresponds to a slightly ventilated wall (perhaps a 0.5 to 1% porous wall or a slotted wall with four slots and 4% open area), and P=0.5 which corresponds to a rather open tunnel (perhaps a 5% to 6% open, 60 degree, inclined hole wall, a 20% open normal hole wall or a haps a 5% to 6% open, 60 degree, inclined hole wall, a 20% open normal hole wall or a slotted wall with 8 slots and 7% open area) which would have small blockage interference at subcritical conditions. These examples of wall configurations corresponding to P = 0.2 and 0.5 should not be construed as having any universal significance. Because of the many variables which influence ventilated wall crossflow characteristics, values of P for a given tunnel may deviate substantially from the examples cited.

The theoretical effects of variations in the homogeneous boundary condition for the RAE 2822 airfoil in a tunnel with a height-to-airfoil-chord ratio, H/c, of four is shown in Fig. 2.1. At subcritical conditions, Fig. 2.1a, the perturbed pressure distributions

A production of the second of

exhibit the effects expected from classical theory. The flow over the airfoil is accelerated, compared to free air, in a solid wall tunnel and decelerated if the tunnel is too open. The magnitude of the interference only qualitatively conforms to classical theory which predicts zero interference in the neighborhood of P=0.5. Simple classical theory does not, however, consider the effects of model thickness and lift distribution. The interference at P=0 and 0.2 is well within experimental accuracy. At the supercritical condition, however, Fig. 2.1b, the interference is significant at all values of P. The fact that the terminal shock location with P=0 and 0.2 agrees with the free-air location is fortuitous. Since the sonic line intersects the tunnel wall with P=0 and 0.2 forming a bounded supersonic channel flow, the terminal shock must move to the airfoil trailing edge which is where the shock happens to be in the free air. The tunnel wall does cause a distortion of the supersonic region, compared to the unbounded case, which results in the increased static pressure over the airfoil upper surface. At the higher value of P, the boundary condition causes a sufficient decrease in local velocities so that the sonic line is much lower than the unbounded case.

Other calculations are available for the RAE 2822 airfoil at one condition which compare the pressure distribution obtained with wall constraint included and at an equivalent free-air condition. The equivalent free-air condition was obtained by applying the classical constraint and blockage corrections. The calculations were made with the RAE VISTRAN program, 22 which includes airfoil boundary-layer effects, combined, in the case of wall constraint included, with the method of Catherall. 23 The comparison is shown in Fig. 2.1c where it can be seen that apart from the region of the shock wave on the upper surface there is good correspondence between the two calculations. It would, however, be dangerous to generalize from this one example that such good correspondence could be obtained for all conditions with supercritical flow.

The theoretical interference at zero lift is illustrated in Fig. 2.2 for the NLR QE 0.11-0.75-1.375 airfoil in tunnels with H/c=3 and 6, respectively. In each case the interference closely resembles classical theory in that the interference is negligible at P=0.5. The calculations also imply that H/c=6 is sufficiently large to avoid interference effects regardless of the boundary condition. This is not the case at lifting conditions, however, as shown in Fig. 2.3 where the interference on the Cast 7 airfoil is presented for P=0.2 and 0.5 and several values of H/c. At P=0.2, even at conditions in which the sonic line does not reach the wall, the calculations indicate the tunnel is too open to attain the correct expansion over the upper surface and that H/c=6.6 is not large enough to make the interference negligible. The situation is worse with P=0.5.

Finally, the calculations shown in Fig. 2.4 are presented to illustrate that it is difficult to generalize, even with a homogeneous boundary condition, the effects of wall interference at supercritical conditions. The SKF 1.1 and Cast 7 airfoil have very similar contours; yet, comparison of Figs. 2.4a and b shows the interference can be somewhat different for the same test and boundary condition. In order to provide some feel for the magnitude of the interference effects, calculations were also made using TSFOIL to determine the free-air conditions corresponding to the pressure distributions obtained for the Cast 7 airfoil with P = 0.2 and 0.5 at $M_{\infty} = 0.76$, $\alpha = 0.2^{\circ}$, Fig. 2.4b. For P = 0.2 the equivalent free-air condition is M = 0.77, $\alpha = -0.7^{\circ}$. To obtain the free-air data at M = 0.76, $\alpha = 0.2^{\circ}$, the test with P = 0.2 and 0.5 should be conducted at M = 0.75, $\alpha = 0.7^{\circ}$ and M = 0.76, $\alpha = 1.8^{\circ}$, respectively.

Unfortunately, interference calculations for 3D models at transonic speeds is beyond the state-of-the-art. It is felt, however, that $\mathrm{H/c}$ and the extent of the supercritical region are the critical parameters for the assessment of wall interference. Both of these factors are much more favorable for the 3D data presented herein than they are for the 2D data. Thus, it is expected that the wall interference effects are significantly less in the 3D data.

Blockage factors were calculated for the body of revolution data with the largest blockage ratio, C-1, using a subsonic theory with the Prandtl-Glauert correction. The results indicate perturbations in C_p of less than 10^{-2} at free-stream Mach numbers equal to or less than 0.9.

2.8 Wave Reflections

The only evidence of wave reflections affecting the data is contained in the pressure distributions from the bodies of revolution, Appendix C. Each body which was tested at Mach numbers greater than unity was disturbed by waves reflected from the tunnel wall. The disturbed regions at zero incidence are quite evident and should pose no interpretation problem. The data upstream of the wave-model intersection are, of course, not affected. At supersonic Mach numbers and non-zero incidence, however, pressure gradients appear along the bodies which, although caused by shed vortices, resemble disturbances caused by spurious waves. Thus, the effects of reflected waves are not so evident in those cases, and the data should be interpreted carefully.

2.9 Measured Boundary Conditions

Five sets of the 2D data (Al, A3, A5, A7, and A8) contain pressures measured along or near the tunnel walls. These data, along with an appropriate assumption regarding the upstream and downstream velocity profiles, provide an outer boundary condition for the theoretical calculations which contains the effects of the tunnel walls. Theories which employ the measured boundary conditions should provide more physically realistic solutions than those which do not. It should be recognized, however, that significant local

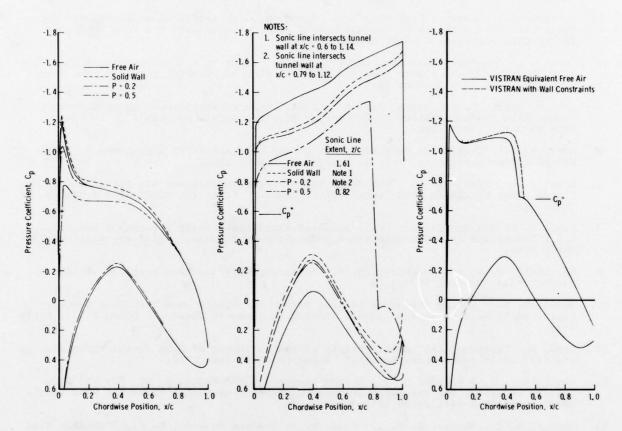
gradients can occur in the wall pressures for a number of reasons not associated with the model-induced flow field. In addition, while three techniques have been used to measure the boundary pressures--orifices in the wall (Al, A3, and A5), orifices in an elliptical rail parallel to the free stream (A7), and a traversing static probe away from the wall (A8)--an investigation has not been conducted to determine if either method is satisfactory to measure the static pressure in the highly non-uniform velocity fields which can exist along the walls above and below the model. Thus, it seems justifiable for the user to employ a smoothed version of the wall pressure distribution, if necessary, to avoid numerical instability problems in the theoretical solutions.

REFERENCES

- Windtunnel Testing Techniques Subcommittee of the Fluid Dynamics Panel. "A Further Review of Current Research Related to the Design and Operation of Large Windtunnels." AGARD-AR-105, August 1977.
- Preston, J. H. "The Interference on a Wing Spanning a Closed Tunnel, Arising from Boundary Layers on the Side Walls, with Special Reference to the Design of Two-Dimensional Tunnels." ARC R4M 1924, 1944.
- Bernard-Guelle, Rene. "Influence des Couches Limites Laterales de Soufflerie dans les Essais Transsoniques en Courant Plan." 12e Colloque Aerodynamique Appliquee ENSMA/CEAT, Poitiers, France, November 1975.
- Carter, E. C. "Some Measurements of the Interference of a Sting Support on the Pressure Distribution on a Rear Fuselage and Tailplane at Subsonic Speeds." ARA Wind Tunnel Note No. 67, October 1967.
- Loving, Donald L. and Luoma, Arvo A. "Sting Support Interference on Longitudinal Aerodynamic Characteristics of Cargo-Type Airplane Models at Mach 0.70 to 0.84." NASA TN D-4021, July 1967.
- Hemp, W. S. "Analytical Representation of the Deformation of Structures." AGARD Manual of Aeroelasticity, Vol. 1, Chapter 1, August 1959.
- Ross, R. and Rokne, P. B. "The Character of Flow Unsteadiness and Its Influence on Steady State Transonic Wind Tunnel Measurements." Paper 45, AGARD CP-174, March 1976.
- Pate, S. R. and Schueler, C. J. "Radiated Aerodynamic Noise Effects on Boundary Layer Transition in Supersonic and Hypersonic Wind Tunnels." <u>AIAA Journal</u>, Vol. 7, March 1968.
- Whitfield, J. D. and Dougherty, N. S. "A Survey of Transition Research at AEDC." AGARD CP-224, October 1977.
- 10. Green, J. E. "On the Influence of Free Stream Turbulence on a Turbulent Boundary Layer, as It Relates to Wind Tunnel Testing at Subsonic Speeds." AGARD R-602, April 1973.
- 11. Otto, H. "Systematical Investigations of the Influence of Wind Tunnel Turbulence on the Results of Force-Measurements." AGARD CP-174, March 1976.
- 12. Hartzuiker, J. P., Pugh, P. G., Lorenz-Myers, W., and Fasso, G. E. "On the Flow Quality Necessary for the Large European High-Reynolds Number Transonic Wind Tunnel LEHRT." AGARD R-644, March 1976.
- Garner, H. C., Rogers, E. W. E., Acum, W. E. A., and Maskell, E. C. "Subsonic Wind Tunnel Wall Corrections." AGARDograph 109, October 1966.
- 14. Goodman, T. R. "The Porous Wall Wind Tunnel, Part II, Interference Effect on a Cylindrical Body in a Two-Dimensional Tunnel at Subsonic Speeds." Cornell Aero Lab Report No. AD-594-A-3, 1950.
- 15. Davis, Don D., Jr., and Moore, Dewey. "Analytical Study of Blockage and Lift-Interference Corrections for Slotted Tunnels Obtained by the Substitution of an Equivalent Homogeneous Boundary for the Discrete Slots." NACA-RM-L53E07b, June 1953.
- 16. Jacocks, J. L. "An Investigation of the Aerodynamic Characteristics of Ventilated Test Section Walls for Transonic Wind Tunnels." Ph.D Dissertation, The University of Tennessee, December 1976.
- 17. Kraft, E. M. "An Integral Equation Method for Boundary Interference in Perforated-Wall Wind Tunnels at Transonic Speeds." Ph.D Dissertation, The University of Tennessee, December 1975.
- 18. Mokry, M., Peake, D. J., and Bowker, A. J. "Wall Interference on Two Dimensional Supercritical Air Foils Using Wall Pressure Measurements to Determine the Porosity Factors for Tunnel Floor and Ceiling." NRC-No. 13894, National Aeronautical Establishment, Ottawa, Canada, February 1974.

A STATE OF THE OWNER OF THE STATE OF THE STA

- Vaucheret, Xavier and Vayssaire, Jean-Charles. "Corrections de Parois en Ecoulement Tridimensional Transsonique dans des Veines a Parois Ventilees." AGARD CP-174, March 1976.
- 20. Blackwell, James A., Jr., and Pounds, Gerald A. "Wind Tunnel Wall Interference Effects on a Supercritical Airfoil at Transonic Speeds." <u>Journal of Aircraft</u>, Vol. 14, No. 10, October 1977.
- Murman, Earll M., Bailey, Frank R., and Johnson, Margaret L. "TSFOIL A Computer Code for Two-Dimensional Transonic Calculations." In <u>Aerodynamic Analyses Requiring</u> <u>Advanced Computers, Part II</u>, NASA-SP-374, March 1975.
- 22. Hall, M. G. and Firmin, M. C. P. "Recent Development Methods for Calculating Transonic Flow Over Wings." ICAS Paper 74-18, August 1974.
- Catherall, D. "The Computation of Transonic Flows Past Aerofoils in Solid, Porous or Slotted Wind Tunnels." Paper 19, AGARD CP-174, March 1976.
- 24. Binion, T. W., Jr., and Lo, C. F. "Application of Wall Corrections to Transonic Wind Tunnel Data." AIAA Paper 72-1009, September 1972.



a. M_{∞} = 0.6, α = 2.57 deg b. M_{∞} = 0.75, α = 3.19 deg c. M_{∞} = 0.725, α = 2.62 deg

Fig. 2.1 Theoretical Wall Interference, RAE 2822 Airfoil, H/c = 4

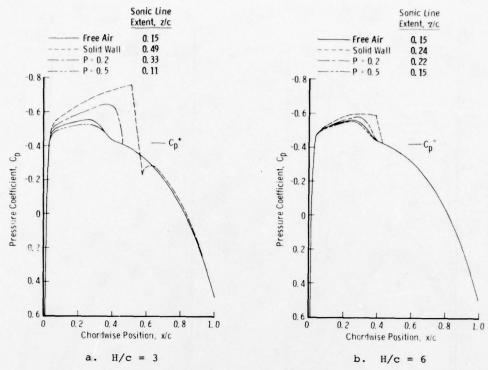


Fig. 2.2 Theoretical Wall Interference Effects on NRL QE 0.11-0.075-1.375 Airfoil, $\rm M_{\infty}$ = 0.8, α = 0

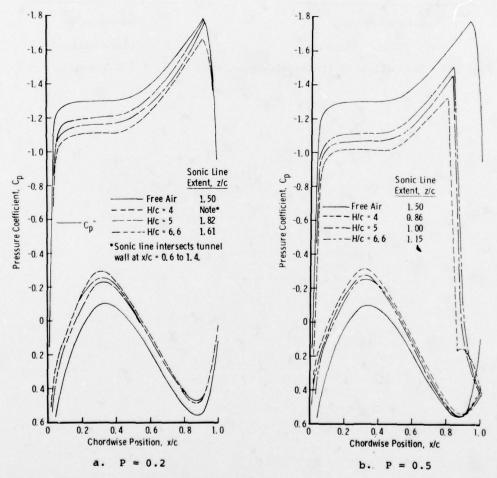


Fig. 2.3 Theoretical Effect of Tunnel Height on 2D Cast 7 Airfoil, $M_{\infty} = 0.76, \ \alpha = 1.5 \ deg$

THE STATE OF THE S

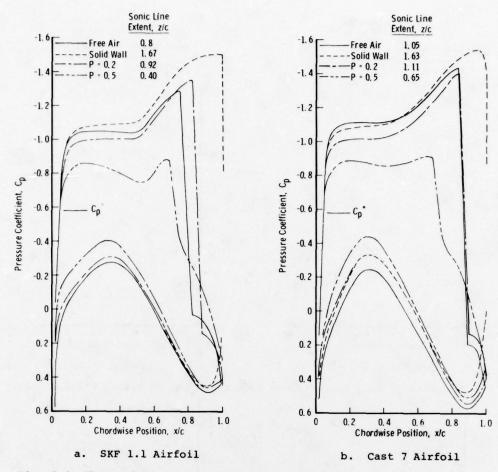


Fig. 2.4 Theoretical Wall Interference, M_{∞} = 0.76, α = 0.2 deg, H/c = 5

3. RECOMMENDATIONS FOR FUTURE TESTING

by

K.G.Winter, RAE, Bedford, and L.H.Ohman, NAE, Ottawa

3.1 General remarks

In the terms of reference of the Working Group it was stated that "The group will define required additional testing to establish adequacy of and confidence in the data and will specify the preferred measurable parameters and method of presentation to enhance the usefulness and utilization of results. A programme of action will be recommended including which facilities should be utilised to obtain the needed data in an expedient manner without excessive demands on one country or facility." Having assessed the most suitable data available the Group concludes that, although some recommendations for specific improvements to the test data can be made, the assessment indicates that there is a need for refined test cases for future use and suggestions for such test cases are made accordingly.

It should be stated that the emphasis in the recommendation is on the acquisition of highly reliable data for the intended purpose of the Working Group. This emphasis leads to an outlook different from that which would be reached if the purpose were intended to lead to improvements in tunnel techniques in general testing or to the acquisition of data for design purposes.

3.2 Two-dimensional tests

In the design of practical wings for aircraft it is clear that a successful outcome will result only if the design process takes full account of the three-dimensional features of the flow, the planform, the camber and twist, the thickness variation and the influence of the body. For a low aspect ratio wing these features will have a dominating influence and the performance of an isolated section may not have a direct correspondence to a section in the wing; on the other hand for a wing of high aspect ratio, sections in the mid semi-span region will have characteristics closely related to those of the section in two-dimensional flow. For such wings it is appropriate to utilise two-dimensional tests and calculations as a starting point for wing design. Thus, there is a need for reliable test results to validate calculation methods. For this purpose an ideal test should take place in interference-free and disturbance-free flow, should cover a range of conditions and should include measurements of pressure distribution, drag by wake traverse and determination of boundary-layer properties.

As noted in Chapter 2, there are still some uncertainties as to what constitutes the appropriate wall correction for each case. However, for those cases in which wall boundary conditions have been measured, a basis does exist for applying the correction, the finite-difference calculations now becoming available providing a more refined means of assessment than has been possible in the past with the classical methods. For a solid-wall tunnel, given the upstream conditions approaching the model, the boundary conditions are fully specified at the wall, provided the wall boundary-layer displacement surface is known. If the wall boundary layer can be ignored, the boundary conditions are of course specified by the zero normal velocity at the wall. In this case measurement of the wall-pressure distribution gives a means of checking the calculated interference. Alternatively by representing the measured perturbations at the wall by an appropriate singularity distribution the interference at the model may be calculated for subcritical flows. For a ventilated tunnel the technique proposed by Mokry et al uses measured pressures to deduce wall porosity, by matching the pressures to a theoretical model of the interference. To provide a check on this type of estimation for a ventilated wall, equivalent to the zero normal velocity condition for a solid wall, measurements of v as well as u near the wall are required. Such measurements could also be used to derive directly the wall boundary conditions. It is therefore suggested that for a datum test case the full boundary conditions should be measured including determination of the flow upstream and downstream of the model. To make use of these boundary conditions a complete finite-difference flow-field calculation would be required. For flows with shock waves it is by no means clear that the outcome would be a set of tunnel corrections. Because of the non-linear nature of the problem, it is possible that there are some cases of constrained flow for which there exists no corres

It is observed in Chapter 2 that a further possible shortcoming of the test results is the presence of three-dimensional effects arising either from the influence of the sidewall boundary layer or self-induced in the aerofoil boundary-layer flow. A reliable test case should explore these effects. Thus the main recommendation is that a datum test should be undertaken in which the following measurements be made:

- (1) The boundary conditions for the inviscid flow in the vicinity of the roof and floor
- (2) Upstream and downstream boundary conditions
- (3) Determination of sidewall boundary-layer thickness for at least two values of the thickness changed, for instance, by applying suction
- (4) Flow disturbance level including identification of acoustic and vorticity contributions

- (5) Aerofoil pressure distribution and its spanwise variation
- (6) Drag by wake traverse and its spanwise variation
- (7) Boundary-layer development
- (8) Wake development near the trailing edge
- (9) Determination of the aeroelastic deformation of the aerofoil

The full set of measurements above are intended for a test to be undertaken in a two-dimensional test facility. If the measurements could be made in a self-correcting wind tunnel, in which the condition of zero interference caused by the tunnel walls which are parallel to the span of the aerofoil could be demonstrated, then, of course, measurement (1) would be incidental to the correction procedure. The datum test could, however, be made in a general purpose wind tunnel of size 2 to 3m (for example the NASA Langley 8-foot Tunnel, Ames 11 foot Tunnel or ARA 9 foot x 8 foot Tunnel) on an aerofoil of relatively small chord, say 0.3m. Because both the tunnel height: model chord ratio and model aspect ratio would then be of the order of 10, the constraint and blockage effects and sidewall interference effects should be small, reducing the importance of making measurements (1), (2) and (3) but because of the high aspect ratio measurement (9) would be important. The minimum test conditions should include both a case with a wholly subcritical flow and a case with a supercritical flow with a strong shock wave. The chosen aerofoil should be of advanced design and could be one of those for which data are already presented in this report (eg A3, A7, A8 or A9, with the extensive tests already made on A3 making it a prime candidate.) The achievement of a high Reynolds number would be advantageous but is not an over-riding criterion and would be restricted by the considerations of the load on a model of such high aspect ratio. The Reynolds number should however be sufficiently high that transition can be fixed without resorting to an excessively large trip. The use of air jets for tripping should be considered.

The above proposal is expensive and ambitious. A compromise is to see how far the present data might be improved. The cases for which the proposal is most nearly met are A3, A6, A7 and A8. For A3 the measurement of boundary conditions in the DFVLR lm x lm tunnel, in which the boundary layer measurements were made, would make this a more complete test case. For A6 no measurements of boundary conditions were made and there would be some difficulty in doing so because the tunnel has only 5 slots per wall, and several measurement positions would be required to ensure that an average condition was being determined. For A7 and A8 boundary conditions have in part been measured: the addition of boundary-layer measurements would further improve the usefulness of the data. There are however some reservations on A8 on account of the low Reynolds numbers of the tests for which the boundary conditions have been measured.

Other recommendations are that data should be sought for an aerofoil thinner than those in the current data base, (the lowest value of thickness-chord ratio is 9%) and that there is a general need for data containing results of boundary-layer measurements, including flows with separation.

3.3 Three-dimensional tests

The same type of recommendation as for two dimensions is made for a three-dimensional (wing-body) model. Of the five test cases selected B1 and B2 are half models without fuse-lage. B3 and B5 are aimed at aircraft design and only B4 had an initial aim of providing data on a wing-body combination with minimum wind-tunnel interference. The model has a blockage of 0.6%, a ratio of span to tunnel width of 0.375, and of mean chord to tunnel height of 0.08. However this case has the drawback that the wing does not have the type of pressure distribution appropriate to a modern design, the Reynolds number is also low-one million - although in the context of the wing section used this raised no problems because of careful attention to the choice of boundary-layer trip. Case B5, although of complex geometry, may be particularly valuable since the model represents an actual aircraft for which flight test data are available. Furthermore, the same model was tested in both the Langley 8 foot and 16 foot transonic tunnels. The data in B5 are from the 8 foot tunnel where special measures were taken to minimize blockage effects.

For the reasons given above it is felt justifiable to make a recommendation for two datum test series:

- (1) a wing-body combination with a wing of high aspect ratio, say 7 or greater and thickness 12% with $30^{\rm O}$ sweep
- (2) a wing-body combination with a wing of low aspect ratio, say 4 and thickness 6% with tapered planform and leading edge sweep 45° .

The models should have sections of supercritical type with aft-loading. It would be advantageous if at some conditions of the test a three-shock pattern were exhibited (forward and rear shocks inboard merging to a single shock outboard), since this type of flow is a severe test of calculation methods. Both models should be tested in a minimum interference environment say blockage less than 0.5%, and span: tunnel width less than 0.5 and tunnel height: chord ratio greater than 10. If possible the boundary conditions should be measured in the vicinity of all four walls. This would be a far more difficult task to accomplish than for a two-dimensional test and a compromise would probably have to be accepted of measuring only a static pressure distribution (and even this would not be

straightforward). The same comments apply, as for two-dimensional models, as regards Reynolds number. A minimum value of about 2×10^6 should be aimed at but even more care would be needed on the selection of the transition trip because of the wing taper and consequent variation of Reynolds number across the span. The aeroelastic distortion should be measured or estimated.

The model of case B3, tested in a larger tunnel, would provide an approximation to the second of the two proposed datum tests.

3.4 Bodies

The test cases provide a reasonable variety of geometry and have blockage ratio as low as 0.15%. Even so, as noted in Chapter 2, interference effects are present in most of the results and the occurrence of reflected disturbances limits the usefulness for Mach numbers near unity and above. A further shortcoming is that there is little information on boundary-layer development. It is however difficult to formulate a simple practical recommendation which would result in a significant improvement in the quality and usefulness of the information. On the basis of the analysis given by Binion the results for configuration C4 (ONERA model C5) in the NASA Ames llft tunnel are virtually interference-free and this configuration therefore forms a good test case. The measurement of boundary-layer developments to complement the pressure distributions would provide a complete test case.

REFERENCES

1 Mokry M Peake D J Bowker A J Wall interference on two-dimensional supercritical aerofoils using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC Aeronautical Report LR-575. February 1974

2 Binion T W

Tests of the ONERA Calibration models in three transonic wind tunnels. AEDC-TR-76-133. November 1976.

CONCLUDING REMARKS

by

Jürgen Barche

DFVLR-AVA, Bunsenstr. 10, D-3400 Göttingen

This report presents an experimental data base intended as support in the development of new and the refinement of existing computer codes in the transonic speed regime. The data are believed to belong to the "highest quality" experimental results available today. As is outlined in Chapter 2, however, there are certain limitations, which a user should keep in mind:

In analysing a large number of potential test cases a lack of information on the test environment was observed with the largest unknown being the effect of the test section wall interference on the flow about the test article. Calculations carried out on the basis of two-dimensional inviscid small-perturbation theory - see Chapter 2 - clearly demonstrate the appreciable influence of the geometry of the test section walls on the airfoil pressure distribution. Hence, to get the full benefit of the costly tests in transonic flow much more emphasis must be placed on reducing wall interference effects by optimizing the wall geometry and by establishing correction procedures that will produce results more presentative of free-air conditions.

Unfortunately, the precise quantitative assessment of the effects of wall interference in ventilated wind tunnels operating at transonic conditions is beyond the present state-of-the-art. An exception are those tests in which sufficient measurements have been taken near the tunnel boundaries - including velocity distributions upstream and downstream of the model - to allow realistic prescribed boundary conditions to be used in a computer code.

As is pointed out in Chapter 3, however, it is still doubtfull that this information also might lead to a usefull set of tunnel corrections if large supersonic regions with terminating shock waves are present.

To obtain more complete test cases for computer program assessment in the near future additional tests on two- and three-dimensional configurations are recommended in Chapter 3. The essence of the recommandation is that a datum test should be undertaken where the entire boundary conditions be determinded, disturbance levels and their influence be identified and the effect of the side wall boundary layer thickness - in the case of the 2D tests - be investigated. Measurements should incluce surface pressures, wake traverses and the determination of the boundary layer and wake development. The additional testing could be directed towards supplementing the present data - prime condicates being A3, A6, A7, A8 and B3; see table 1.2 and 1.3 - or towards carrying out a full set of new measurements. The latter has the advantage that the model and test environment most appropriate for the present objective can be selected, while a disadvantage lies in the somewhat longer time it would take to realize a full set of new measurements.

In spite of the limitations of the present data and the need for additional testing, it is believed that the data base presented here will largely meet the set objective. This is mainly due to the fact that for all of the configurations selected a fairly large amount of information on actual model geometry, wall interference, wall boundary conditions and on test conditions as well as an estimation of the data accuracy is presented. This will enable the user to judge the merit of each individual data set and allow him to draw conclusions concerning the quality of and necessary refinements to his computer code.

APPENDIX A 2-D CONFIGURATIONS

O. Guide to the data

eliminated.

The objective of this data base being to compile, in the interest of the experimental verification of computational methods for 2-D transonic flows, the best available 2-D airfoil test data, much effort has been put in providing the potential user with all the available information on the geometrical and physical environments in which the airfoils were tested. This, supposedly, should help the user in forming his own judgement on the usefulness of each data set for his specific purpose.

For consistency and to facilitate the use of the data specific information on each data set has been put into one single format. The format contains information on model geometry, wind tunnel/model configuration (wall interference!), test set-up, test conditions, instrumentation, accuracy etc, as well as a guide to the actual data tables and graphs. Background information and additional remarks are given in the introduction to each data set. The (potential) user is, in his own interest, encouraged to take full notice of both the format and background information.

In order to help the user in selecting information to meet his needs from the nine different 2-D airfoil configurations included in this data base some important specific properties of the various configurations and tests are summarized below.

- Airfoil geometry

Of each airfoil either the actual measured coordinates are given or the nominal (theoretical) coordinates plus the deviation from those measured on the model. In this way one possible source of discrepancy between computational and experimental results is practically

Mall interference
Although in all cases it has been attempted to reduce wind turnel wall interference as much as possible and to provide the best available data on wall interference corrections, there is, as mentioned already in Chapter 2 of this report, no absolute certainty about the real magnitude of wall interference effects. Where corrections have been applied, the method of doing this is indicated in order that the uncorrected data may be recovered, should the user wish to do so.

In two sets of data (A7, NAE tests and A8, Politechnico di Torino tests) this problem has been circumvented by measuring static pressures at a small distance from both the top and bottom ventilated walls. In data sets A3 (DFVLR TWB tests) and A5 (ONERA tests) pressures have been measured at the top and bottom walls. With the assumption of parallel flow at the reference static pressure point upstream of the model and at some distance downstream, and the assumption that the wall pressures are sufficiently representative for a "homogeneous" boundary condition, these data sets provide the possibility of solving the problem of an airfoil in a channel with given (measured) boundary conditions on the channel boundaries. In a comparison between computational results thus obtained and the experimental results, wall interference, as a source of discrepancy, may, in principle, be eliminated.

In two other sets of data (Al and A2), concerning symmetrical airfoils at zero angle of attack, one type of wall interference, that due to lift, is absent. From the point of view of concern about wall interference effects these data sets are of special interest. For the remaining lifting cases possible discrepancies between theory and experiment due to lift-induced wall interference may, of course, be reduced by the familiar procedure of comparing for the same lift rather than for the same angle of attack. However, by doing so, the possibility is introduced of confusing tunnel interference effects and real airfoil (such as viscous) effects.

- Test conditions

In many practical applications it is often more important to be able to predict the variation of the aerodynamic coefficients with Mach number, angle of attack and Reynolds number than to predict the absolute level. For this reason most data sets contain one Mach number eweep at constant angle of attack, at least one angle-of-attack sweep at constant Mach number, and in one case (A3, TWB tests) also Reynolds number sweeps at constant angle of attack and Mach number.

Mach number sweeps of sufficiently wide range are contained by data sets Al, A2, A3, A4, A5,A7, A8, and A9. Angle-of-attack sweeps of sufficiently wide range can be found in A3, A4, A5,A7, A8 and A9.

At the practical level of airfoil design it is of equal if not even greater importance to be able to predict the difference between the aerodynamic characteristics of one airfoil and another. In aerodynamic testing this is, for obvious reasons, preferably established in one and the same wind tunnel. Checking the predictive capabilities of computational methods in this respect would seem very important if not a prerequisite. Although the present data base was not compiled for this specific purpose it contains several examples of different airfoils tested in one and the same tunnel;

NAE 5 x 5 ft: NACA 0012 (A1), NLR QE (A2), NAE 75-036-13.2 (A7)

and the second of the second o

ARA 8x18 inch
ONERA S3 MA
NLR Pilot Tunnel

CAST 7(A3), MBB A.3(A8)

NACA 0012 (A1), SKF 1.1 (A5)

NLR QE (A2), NLR 7301 (A4)

A special case is formed by the SKF 1.1 set (A5) which contains data for several flap deflections.

Reynolds numbers
The data cover a Reynolds number range of 0.4 - 40 x 10^6 .

"High Reynolds number" data (\gt 10 x 10^6) can be found in data sets A1, A2, A3, A7, "moderate Reynolds number" data $(4-10x10^6)$ in A1, A3, A5, A6. A8, A9, "moderately low Re.no." data $(1-4x10^6)$ in A2, A3, A4, A5, A6 and "low (\lt 1x10 6) Re. no" data in A8.

- Transition position

A very important parameter for the aerodynamic characteristics of an airfoil, in particular in transonic flow, is the position of boundary layer transition. In view of the modest state of the art of transition prediction methods (due, of course, to the complexity of the mechanism of transition), data on the position of transition should form an essential part of an experimental data base for computer program assessment. In the following data sets the majority of data points was taken with transition fixed by a roughness strip: A2 (NLR data), A3, A4, A6, A9. In data sets A4 and A9 the boundary layer trip was positioned relatively far aft, so that under flow conditions with significant adverse pressure gradients near the leading edge natural transition may have taken place in front of the trip. In A4 it has been indicated when this was the case. The location of natural boundary layer transition was determined by means of flow visualization techniques in data sets A2 (NLR data) and A4. For the remaining data sets A1, A5, A7 and A8 the position of transition, if not evident from the pressure distribution, may be estimated by means of one of the prediction methods available in the literature. The uncertainty involved with such procedure should not be too large in cases with high adverse pressure gradients near the nose. More caution is required in cases of flat or slightly sloping pressure distributions.

- Boundary layer data

Boundary layer and wake data allowing the detailed comparison of computed and measured flow fields can be found in data sets A3 and A6.

It is finally mentioned that, in case further information on a specific data set is required, the formats contain the name and address of the person to be contacted at the organization that performed the wind tunnel tests.

1. NACA 0012 AIRFOIL

J.J. THIBERT, M. GRANDJACQUES - ONERA
L.H. OHMAN - NAE/NRC

1.1. Introduction

The NACA 0012 airfoil was selected for the following reasons:

- i. This airfoil has been tested in most wind tunnels in the world and these data can be used for comparisons with other test results.
- ii. Tests were performed at moderate Reynolds numbers in the ONERA S3MA wind tunnel and at high Reynolds number in the 2-D insert of the NAE 5 ft x 5 ft transonic wind tunnel, so there are differences between the two test configurations (height/chord ratio 3.71 versus 5 span/chord ratio 2.67 versus 1.27). The ONERA data include static pressure distributions on top and bottom walls which can be used to determine wall interference corrections.
- iii. The data at zero angle of attack (which are not affected by wall interference due to lift) for various Reynolds number are good tests for methods involving coupled inviscid flow and boundary layer computations.

ONERA S3MA data are given in section 1.2 while NAE data are given in section 1.3.

1.2. DATA SET FROM ONERA TUNNEL

1. Airfoil

1.1. Airfoil designation

1.2. Type of airfoil

1.2.1. airfoil geometry

nose radius maximum thickness base thickness

1.2.2. design condition

NACA 0012

symmetrical (see fig. 1.11)

 $Y = {}^{+} 0.60 (0.2969 \sqrt{X} - 0.126 X - 0.3516 X^{2} + 0.2843 X^{3} - 0.1015 X^{4})$

+ 0.2843 X - 0.101 0.0158 chord

0.0158 chord 0.012 chord 0.0025 chord

mathematical definition corresponding to pre-existing efficient airfoils

1.3. Additional remarks

1.4. References on airfoil

none

ref. 1

2. Model geometry

2.1. Chord length

2.2. Span

2.3. Actual model co-ordinates and accuracy

2.4. Maximum thickness

2.5. Base thickness

2.6. Additional remarks

2.7. References on model

0.210 m

0.560 m

See table 1.1 and figure 1.1

0.1205 chord

0.0023 chord

none

none

3. Wind tunnel

3.1. Designation

3.2. Type of tunnel

3.2.1. stagnation pressure

3.2.2. stagnation temperature

3.2.3. humidity/dew point

3.3. Test section

3.3.1. dimensions

3.3.2. type of walls

S3 Modane or S3 MA

blow down

variable between 1 and 4 bar

T₁ mean = 273 K varying slightly during a blow down see figure 1.2

humidity < 0.5g H₂0/Kg air

rectangular See figure 1.3

height = 0.78 m; width = 0.56 m

 $9.7\,\%$ perforated top and bottom walls. Solid side walls, separate top and bottom plenums, holes are normal to the flow direction

3.4. Flow field (empty test section)

3.4.1. reference static pressure

3.4.2. flow angularity

3.4.3. Mach number distribution

3.4.5. turbulence / noise level

3.4.6. side wall boundary layer

3.4.4. pressure gradient

taken at side wall 8.19 chords upstream of the model

< | 0.05°|

see figure 1.4

flaps (fig.1.3) are adjusted to give zero Mach number gradient between the leading edge of the model and the wake rake for the empty test section

see figure 1.5

 $6 \left(\frac{U}{Ue} = 0.99 \right) = 60 \text{ mm for M} = 0.4$ 50 mm for M = 0.6 43 mm for M = 0.8

at 0.25 chords of the profile and Pi = 1.2 bar

3.5. Additional remarks

none

3.6. References on wind tunnel

ref. 2 and 3

3.71

2.67

- surface pressure - wake pitot pressure

4. Tests

- 4.1. Type of measurements
- 4.2. Tunnel/model dimensions
 - 4.2.1. height/chord ratio
 - 4.2.2. width/chord ratio
- 4.3. Flow donditions included in present data base
 - 4.3.1. angle of attack
 - 4.3.2. Mach number

| М | Force measurements | pressure measurements |
|------|----------------------------------|-----------------------|
| 0.3 | -2 < X < + 1 ⁴ | 0/4 |
| 0.4 | -2 < «< +12 | - |
| 0.5 | -2 < x< +10 | 0/2/4/6/8 |
| 0.6 | ,-2 < ∝< +9 | 4 |
| 0.7 | -2 < 0 < +9 | 0/4 |
| 0.75 | -2 <∞ < +7 | 0/1/2/3/4 |
| 0.8 | -2 < x < +6 | 0 |
| 0.83 | -2 < x < +6 | 0 |

- top and bottom wall pressure distributions

see figure 1.6

4.3.3. Reynolds number

4.3.4. transition

- position of free transition
- transition fixing
- 4.3.5. temperature equilibrium
- 4.4. Additional remarks
- 4.5. References on tests
- 5. Instrumentation
 - 5.1. Surface pressure measurements
 - 5.1.1. pressure holes
 - size
 - spanwise station (s)
 - chordwise positions
 - 5.1.2. type of transducers and scanning devices
 - 5.1.3. other
 - 5.2. Wake measurements
 - 5.2.1. type/size of instrument(s)
 - 5.2.2. streamwise position (s)
 - 5.2.3. type of transducers and scanning devices

ing breakers the decident and appropriately the same

- 5.3. Boundary layer measurements
 - 5.3.1. type/size of instruments

Free

was not determined

none

No

the leading edge of the model is located 71 mm ahead of the origin of the wall pressure hole abscissa (window axis fig 1.4) see reference 4

 $\emptyset = 0,4 \text{ mm}$; depth 1 to 2 mm

See figure 1.7

See table 1.2

+ 25 PSI Statham differential pressure transducers accuracy: + 0.015 PSI see table 1.2 for hole coordinates on top and bottom walls

Yes

moving rake: See figure 1.8

wake rake at one chord downstream of the trailing edge at mid-span

± 10 PSI Statham differential pressure transducers accuracy: ± 0.008 PSI

None

5.3.2. locations 5.3.3. type of transducers and scanning devices 5.4. Skin friction measurements None 5.4.1. type/size of instruments 5.4.2. locations 5.4.3. type of transducer 5.5. Flow visualisation None 5.5.1. flow field 5.5.2. surface flow 5.6. Other None 5.7. Additional remarks 5.8. References on instrumentation 6. Data 6.1. Accuracy (wall interference excluded) ± 0.04° 6.1.1. angle of attack setting 6.1.2. free stream Mach number: + 0.003 - setting - variation during one pressure $\Delta \text{ Cp} < 0.005 + 0.01 | \text{Cp}| \text{ à Mo} = 0.7$ 6.1.3. pressure coefficients 6.1.4. aerodynamic coefficients see 6.1.6. 6.1.5. boundary layer quantities $\texttt{M}\! >\! \texttt{0.5} \quad \texttt{C}_{_{\mathbf{Z}}} \stackrel{\texttt{+}}{_{\overset{\texttt{+}}{}}} \texttt{0.005} \quad \texttt{C}_{_{\mathbf{m}}} \stackrel{\texttt{+}}{_{\overset{\texttt{+}}{}}} \texttt{0.001} \quad \texttt{C}_{_{_{\mathbf{XS}}}} \stackrel{\texttt{+}}{_{\overset{\texttt{+}}{}}} \texttt{0.0006}$ 6.1.6. repeatability M = 0.3 $C_z = 0.011$ $C_m = 0.002$ $C_{xs} = 0.0003$ 6.1.7. remarks For M ~ 0.75 and ≪ ~ 2° the magnitude of the wall (indicate estimated accuracy) corrections are △~ ~ 0.5° 6.2.1. angle of attack 6.2.2. blockage (solid/wake) ΔM ~ 0.0016

6.2. Wall interference corrections 6.2.3. streamline curvature (lift) △ Cz ~ 0.002 6.2.4. other △ Cm ~ 0.0006 6.2.5. remarks The porosity factor has been determined to provide the same C_{2N} for the corrected tests with porous and solid walls. (P = 0.6 is the value retained for all the tests). 6.2.6. references on wall interference reference 5

6.3. Presentation of data

correction

6.3.1. aerodynamic coefficients see table 1.3 for conditions of § 4.3 and figure 1.9 6.3.2. surface pressures

see table 1.4 and figure 1.10 $\alpha = 0^{\circ}$ Mo = 0.3/0.5/0.7/0.75/0.8/0.83 $\alpha = 4^{\circ}$ Mo = 0.3/0.5/0.6/0.7/0.75 (p. A1.9, 10, 11) and in addition Mo = 0.5 $\alpha = 2/6/8$ (p. A1.12) Mo = 0.75 $\alpha = 1/2/3$ (p. A1.13)

- 6.3.3. boundary layer quantities
- 6.3.4. wall interference corrections included ?
- 6.3.5. corrections for model deflection
- 6.3.6. empty test section calibration taken into account ?
- 6.3.7. other corrections included ?
- 6.3.8. additional remarks
- 6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?
- 6.5. To be contacted for further information on tests

See table 1.3

None

Yes

No

None

Yes at NAE THWT - some data included in section 1.3

CALSPAN - no data included

J.J. THI BERT ONERA 92320 CHATILLON (FRANCE)

7. References

- 1. IH Abbott A.E von Doenhoff
- 2. M. Pierre G. Passo
- 3. M. Bazin
- 4. M. Grandjacques
- 5. M. Mokry
- 8. List of symbols

"Theory of wing sections". Mc Graw-Hill publications in Aeronautical science. 1949

Note Technique ONERA n° 166 (1970) Le Centre d'essais aérothermodynamiques de Modane-Avrieux

Note Technique CNERA n° 203 (1972) Dispositif d'essais de profils en courant plan dans la soufflerie S3 de Modane -Avrieux.

Essais à S3MA des profils NACA 0012 et NACA 0012 à bord d'attaque cambré en écoulement plan PV n° 61/1369 ANG (not published)

Higher-order theory of two dimensional subsonic wall interference in a perforated wall wind tunnel MRC Aero Report LR 553 (1971)

PI = PIO stagnation pressure (daPa)

PO = reference static pressure

MO = upstream Mach number

PD = dynamic pressure (daPa)

TIO = stagnation temperature (°K) ALPHA = angle of attack (degré)

CZ = lift coefficient in aerodynamic axes

CM = pitching moment

Cxs = wake drag coefficient

 $\frac{X/L}{Z/L}$ = coordinates related to chord

P = pressure measurement on the model

CP = pressure coefficient

Re = Reynolds number related to chord

Subscript :

C indicates a corrected value

Table 1.1 ACTUAL NACA 0012 COORDINATES

Chord : 210 mm

| X com | Upper surface | Lower surface | Xmm | Upper surface | Lower surface |
|-------|---------------|---------------|--------|------------------|------------------|
| 0 | 0 | | 60 | 12.660 | - 12.57 |
| 1 | 2.490 | - 2.490 | 65 | 12.680 | - 12.57 |
| 2 | 3.515 | - 3.495 | 70 | 12.635 | - 12.54 |
| 3 | 4.275 | - 4.225 | 75 | 12.540 | - 12.44 |
| 4 | 4.890 | - 4.835 | 80 | 12.395 | - 12.28 |
| 5 | 5.420 | - 5.365 | 85 | 12.215 | - 12.09 |
| 6 | 5.890 | - 5.850 | 90 | 12.015 | - 11.88 |
| 7 | 6.310 | - 6.255 | 95 | 11.790 | - 11.6 |
| 8 | 6.685 | - 6.635 | 100 | 11.520 | - 11.37 |
| 9 | 7.035 | - 6.990 | 105 | 11.220 | - 11.0 |
| 10 | 7.365 | - 7.315 | 110 | 10.885 | - 10.7 |
| 12 | 7.955 | - 7.905 | 115 | 10.530 | - 10.3 |
| 14 | 8.465 | - 8.420 | 120 | 10.155 | - 10.0 |
| 16 | 8.925 | - 8.880 | 125 | 9.760 | - 9.6 |
| 18 | 9.340 | - 9.380 | 130 | 8.860 | - 9.1 |
| 20 | 9.710 | - 9.670 | 135 | 8.935 | - 8.7 |
| 22 | 10.055 | - 10.005 | 140 | 8.490 | - 8.3 |
| 24 | 10.370 | - 10.310 | 145 | 8.020 | - 7.8 |
| 26 | 10.650 | - 10.590 | 150 | 7.530 | - 7.3 |
| 28 | 10.905 | - 10.835 | 155 | 7.025 | - 6.8 |
| 30 | 11.130 | - 11.065 | 160 | 6.505 | - 6.2 |
| 32 | 11.345 | - 11.270 | 165 | 5.980 | - 5.7 |
| 34 | 11.530 | - 11.460 | 170 | 5.430 | - 5.1 |
| 36 | 11.700 | - 11.630 | 180 | 4.285 | - 4.0 |
| 38 | 11.855 | - 11.790 | 185 | 3.680 | - 3.4 |
| 40 | 11.990 | - 11.930 | 190 | 3.070 | - 2.7 |
| 42 | 12.115 | - 12.050 | 195 | 2.440 | - 2.1 |
| 44 | 12.220 | - 12.150 | 200 | 1.800 | - 1.5 |
| 46 | 12.320 | - 12.240 | 205 | 1.130 | - 0.8 |
| 48 | 12.400 | - 12.320 | 209,90 | 0.380 | - 0.1 |
| 50 | 12.480 | - 12.380 | | | |
| 55 | 12.600 | - 12.500 | | | |

TABLE 1.2 COORDINATES OF PRESSURE HOLES

| * | | ^ | ٠ | - | - | 1 | ٠ |
|----|---|---|---|---|---|---|---|
| -1 | η | 0 | ı |) | ۲ | ç | d |

| MODEL. | | | | | |
|---|--|--|--|---|---|
| | Lower Surface Upper Surfa | | | rface | |
| N° | X/C | z/c | N° | X/C | Z/C |
| 1 2 3 4 5 6 7 8 9 10 1 12 3 14 15 6 17 8 19 0 2 1 2 2 2 4 2 5 6 2 8 2 9 3 3 1 | 0 0.0197 0.0296 0.0590 0.0697 0.0989 0.1195 0.1801 0.1997 0.2200 0.2400 0.2400 0.3495 0.4103 0.4396 0.4698 0.5302 0.5899 0.6201 0.6496 0.7099 0.7393 0.7699 0.7393 0.7699 0.7393 0.8298 0.8598 0.8598 0.8598 0.9195 0.9497 | 0 -0.02334 -0.02823 -0.03813 -0.04670 -0.05996 -0.05996 -0.05996 -0.05996 -0.05996 -0.05996 -0.05996 -0.05996 -0.05996 -0.05992 -0.04647 -0.04398 -0.04139 -0.02276 -0.0924 -0.02699 -0.02276 -0.01924 -0.01569 -0.0193 -0.00804 | 2334556738394144444564845555555555555666666666 | 0.9701 0.9102 0.8797 0.8503 0.8198 0.7900 0.7304 0.6696 0.6396 0.5192 0.4893 0.4591 0.3393 0.3102 0.2793 0.2492 0.2492 0.2293 0.2492 0.2993 0.1697 0.1496 0.1098 0.0995 0.0893 0.0803 | 0.00547 0.01323 0.01702 0.02056 0.02408 0.02738 0.03367 0.03961 0.04225 0.04486 0.04727 0.055364 0.05538 0.05538 0.05990 0.05999 0.06005 0.05999 0.05999 0.05879 0.05889 0.05536 |

WALLS

| | | - | |
|--|--|--|--|
| 1 | Top | | Bottom |
| | | | |
| N° | Х | N° | Х |
| - | | | |
| 123456789 | -1.79000 -1.49000 -1.14000 -0.64000 -0.54000 -0.49000 -0.39000 -0.34000 -0.25000 | 35 36 37 38 39 40 41 42 43 | 0.73000 0.63000 0.58500 0.54500 0.45500 0.40500 0.25000 0.25000 |
| 10 11 12 13 14 15 16 17 | -0.20000 -0.15000 -0.13000 -0.11000 -0.07000 -0.07000 -0.05000 | 44 45 46 47 48 49 50 51 | 0.15000 0.13000 0.11000 0.09000 0.07000 0.05000 0.03000 0.01000 |
| 17 18 19 20 21 22 23 24 | -0.03000 -0.01000 0.01000 0.03000 0.05000 0.07000 0.09000 0.11000 | 52 53 54 55 56 57 58 | -0.01000 -0.03000 -0.05000 -0.07000 -0.09000 -0.13000 |
| 25 26 27 28 29 30 31 32 33 34 | 0.13000 0.15000 0.20000 0.25000 0.35000 0.39000 0.49000 0.57000 0.62000 0.72000 | 59 60 61 62 63 64 65 66 67 68 | -0.15000 -0.20000 -0.25000 -0.25000 -0.34000 -0.44000 -0.54000 -0.64000 -0.83000 -1.23000 |

The abscissa of the model leading edge is - .071 m

NACA 0012 in S₃ M.A without wall corrections

NACA 0072 in S₃MA
wall corrections included

| 0.301 0.30 0.299 0.299 0.299 0.299 | - 2.02 - 0.02 2.07 4.04 6.07 8.07 | 1.84 1.85 1.75 1.86 | - 0.164 0.005 0.189 | -0.0026 -0.0009 | 0.0074 |
|---|--|------------------------------|---------------------------|--------------------|--------|
| 0.30 0.299 0.299 0.299 0.299 | - 0.02 2.07 4.04 6.07 | 1.85 1.75 1.86 | 0.005 | -0.0009 | |
| 0.299 0.299 0.299 0.299 | 2.07 4.04 6.07 | 1.75 | The second | | 0.0072 |
| 0.299 0.299 0.299 | 4.04 6.07 | 1.86 | 0.189 | 1 | |
| 0.299 | 6.07 | | | -0.0012 | 0.0076 |
| 0.299 | | 1 04 | 0.350 | 0.0011 | 0.0090 |
| | 8.07 | 1.86 | 0.528 | 0.0023 | 0.0098 |
| 0.299 | | 1.87 | 0.703 | 0.0052 | 0.0114 |
| | 10.09 | 1.86 | 0.882 | 0.0048 | 0.0136 |
| 0.299 | 11.06 | 1.85 | 0.948 | 0.0045 | 0.0149 |
| 0.299 | 12.04 | 1.84 | 1.037 | 0.0060 | 0.0171 |
| 0.299 | 13.06 | 1.82 | 1.074 | 0.0107 | 0.0200 |
| 0.299 | 14.06 | 1.81 | 1.121 | 0.0109 | 0.0234 |
| | | | | | |
| 0.401 | - 2.02 | 2.29 | - 0.177 | -0.0031 | 0.0076 |
| 0.403 | - 0.03 | 2.34 | 0.009 | -0.0007 | 0.0072 |
| 0.401 | 1.93 | 2.34 | 0.184 | 0.0002 | 0.0073 |
| 0.401 | 3.93 | 2.34 | 0.363 | 0.0011 | 0.0080 |
| 0.40 | 5.93 | 2.34 | 0.547 | 0.0027 | 0.0093 |
| 0.40 | 7.93 | 2.32 | 0.727 | 0.0040 | 0.0111 |
| 0.401 | 9.93 | 2.31 | 0.903 | 0.0086 | 0.0139 |
| 0.401 | 11.04 | 2.30 | 0.971 | 0.0136 | 0.0186 |
| 0.401 | 12.05 | 2.30 | 1.003 | 0.0171 | 0.0261 |
| | | | | | |
| 0.504 | - 2.12 | 2.88 | - 0.192 | - 0.0018 | 0.0071 |
| 0.502 | - 0.02 | 2.89 | 0.010 | - 0.0009 | 0.0069 |
| 0.502 | 2.06 | 2.91 | 0.198 | 0.0005 | 0.0070 |
| 0.504 | 4.06 | 2.93 | 0.391 | 0.0030 | 0.0079 |
| 0.503 | 6.05 | 2.93 | 0.586 | 0.0046 | 0.0090 |
| 0.503 | 7.01 | 2.90 | 0.675 | 0.0086 | 0.0099 |
| 0.503 | 8.02 | 2.85 | 0.772 | 0.0137 | 0.0118 |
| 0.502 | 9.01 | 2.83 | 0.848 | 0.0215 | 0.0168 |
| 0.502 | 10.03 | 2.82 | 0.90 | 0.0228 | 0.0250 |
| | | | | - | |
| 0.602 | -2.04 | 3.28 | -0.206 | -0.0017 | 0.0071 |
| 0.604 | -0.05 | 3.34 | 0.003 | -0.0006 | 0.0067 |
| 0.602 | 1.93 | 3.31 | 0.199 | 0.0012 | 0.0068 |
| 0.602 | 4.04 | 3.29 | 0.421 | 0.0047 | 0.0077 |
| 0.601 | 6.03 | 3.24 | 0.629 | 0.0135 | 0.0101 |
| 0.604 | 7.04 | 3.20 | 0.729 | 0.0214 | 0.0152 |
| 0.602 | 8.02 | 3.17 | 0.810 | 0.0254 | 0.0237 |
| 0.601 | 9 | 3.15 | 0.859 | 0.0291 | 0.0369 |
| | | | | | |

| Mo _C | de | č,zc | Cm _C | c _{xsc} |
|-----------------|--------|---------|-----------------|------------------|
| - | | 7 | | |
| | -11 | 1 | | |
| 0.301 | - 1.84 | - 0:162 | -0.0031 | 0.007/ |
| 0.30 | - 0.05 | 0.005 | -0.0008 | 0.0072 |
| 0.30 | 1.82 | 0.)87 | -0.0006 | 0.0076 |
| 0.30 | 3.59 | 0.345 | 0.0021 | 0.0090 |
| 0.299 | 5.41 | 0.923 | 0.0038 | 0.0098 |
| 0.299 | 7.195 | 0.697 | 0.0072 | 0.0114 |
| 0.299 | 8.99 | 0.875 | 0.0072 | 0.0136 |
| 0.299 | 9.89 | 0.944 | 0.0069 | 0.0149 |
| 0.299 | 10.77 | 1.035 | 0.0082 | 0.0171 |
| 0.299 | 11.74 | 1.075 | 0.0124 | 0.0200 |
| 0.299 | 12.69 | 1.126 | 0.0122 | 0.0234 |
| | | 3 | | |
| 0.401 | - 1.81 | - 0.174 | -0.0036 | 0.0076 |
| 0.403 | - 0.65 | 0.009 | -0.0006 | 0.0072 |
| 0.401 | 1.665 | 0.181 | 0.0008 | 0.0073 |
| 0.401 | 3.43 | 0.358 | 0.0023 | 0.0080 |
| 0.400 | 5.19 | 0.539 | 0.0044 | 0.0093 |
| 0.400 | 6.95 | 0.718 | 0.0063 | 0.0111 |
| 0.401 | 8.72 | 0.893 | 0.0111 | 0.0139 |
| 0.401 | 9.75 | 0.965 | 0.0151 | 0.0186 |
| 0.401 | 10.72 | 1.003 | 4.0171 | 0.0261 |
| | | | - | 1 |
| | | | - | |
| 0.504 | -1.87 | -0.189 | -0.0024 | 0.007 |
| 0.503 | -0.06 | 0.009 | 0.0009 | 0.006 |
| | 1.77 | 0.195 | 1 | 0.007 |
| 0.504 | 3.51 | 0.386 | 0.0043 | 0.007 |
| 0.504 | 6.07 | 0.668 | 0.0064 | 0.009 |
| 0.503 | 6.95 | 0.766 | 0.0159 | 0.009 |
| 0.502 | 7.85 | 0.765 | 0.0233 | 0.0168 |
| 0.502 | 8.80 | 0.901 | 0.0236 | 0.025 |
| 0.502 | 0.00 | 0.501 | 0.0250 | 0.025 |
| | | | | |
| 0.603 | -1.75 | -0.203 | -0.0024 | 0.0071 |
| 0.604 | -0.08 | 0.002 | -0.0004 | 0.0067 |
| 0.603 | 1.61 | 0.196 | 0.0020 | 0.0068 |
| 0.602 | 3.38 | 0.416 | 0.0062 | 0.0077 |
| 0.60 | 5.08 | 0.621 | 0.0157 | 0.010 |
| 0.603 | 5.93 | 0.722 | 0.0239 | 0.015 |
| 0.602 | 6.80 | 0.807 | 0.0273 | 0.023 |
| 0.60 | 7.70 | 0.863 | 0.0297 | 0.0370 |
| | | | 119 | |
| | | | | |

Table 1.3 AERODYNAMIC COEFFICIENTS (CON'D)

NACA 0012 in S₃ M.A

without wall corrections

NACA 0012 in $s_3^{\rm MA}$ wall corrections included

| Мо | 4° | Re/ ₁₀ 6 | Cz | Cm | c _{xs} |
|-------|--------------|---------------------|---------|---------|-----------------|
| 0.702 | - 2.10 | 3.76 | -0.229 | -0.0048 | 0.0069 |
| 0.703 | - 0.05 | 3.79 | 0.002 | -0.0009 | 0.00685 |
| 0.702 | 1.88 | 3.81 | 0.222 | 0.0031 | 0.0068 |
| 0.703 | 4.03 | 3.75 | 0.491 | 0.0116 | 0.0112 |
| 0.700 | 1.92 | 3.57 | 0.219 | 0.0034 | 0.0069 |
| 0.704 | 3.95 | 3.55 | 0.479 | 0.0113 | 0.0110 |
| 0.705 | 5 | 3.54 | 0.610 | 0.0137 | 0.0196 |
| 0.702 | 6 | 3.54 | 0.693 | 0.0162 | 0.0294 |
| 0.702 | 6.98 | 3.51 | 0.750 | 0.0178 | 0.0425 |
| 0.702 | 8.02 | 3.50 | 0.795 | 0.0098 | 0.0630 |
| 0.703 | 9.02 | 3.49 | 0.785 | 0.0080 | 0.0847 |
| 0.754 | - 2.12 | 3.94 | -0.274 | -0.0048 | 0.0096 |
| 0.757 | - 1.02 | 3.99 | -0.116 | -0.0040 | 0.0073 |
| 0.756 | - 0.01 | 4.01 | 0.010 | -0.0004 | 0.0068 |
| 0.754 | 0.99 | 3.96 | 0.127 | 0.0036 | 0.0072 |
| 0.753 | 1.95 | 3.88 | 0.258 | 0.0055 | 0.0088 |
| 0.754 | 2.98 | 3.80 | 0.408 | 0.0043 | 0.0143 |
| 0.756 | 3.99 4.95 | 3.76 | 0.533 | 0.0015 | 0.0245 |
| 0.757 | 5.96 | 3.73 | 0.623 | -0.0014 | 0.0508 |
| 0.754 | 6.98 | 3.73 | 0.721 | -0.0113 | 0.0716 |
| | | | | | |
| 0.803 | -2.13 | 4.03 | -0.137 | 0.0120 | 0.0206 |
| 0.800 | -0.95 | 4.08 | -0.141 | 0.0028 | 0.0120 |
| 0.803 | 0.05 | 4.09 | 0.005 | 0.0009 | 0.0106 |
| 0.805 | 1.04 | 4.03 | 0.153 | -0.0045 | 0.0137 |
| 0.802 | 2.02 | 3.94 | 0.307 | -0.0115 | 0.0199 |
| 0.805 | 3,03 | 3.85 | 0.441 | -0.0218 | 0.0306 |
| 0.800 | 4.02 | 3.81 | 0.534 | -0.0289 | 0.040 |
| 0.803 | 4.99 | 3.82 | 0.592 | -0.0384 | 0.0506 |
| 0.801 | 6.02 | 3.82 | 0.656 | -0.0415 | 0.0703 |
| | | | | | |
| 0.830 | - 2.04 | 4.05 | - 0.269 | 0.0231 | 0.0266 |
| 0.832 | - 0.95 | 4.10 | - 0.139 | 0.0140 | 0.0207 |
| 0.829 | 0.05 | 4.08 | 0.010 | -0.0011 | 0.0175 |
| 0.831 | 1.04 | 4.00 | 0,170 | -0.0192 | 0.0217 |
| 0.831 | 2.02 | 3.91 | 0.321 | -0.0342 | 0.0291 |
| 0.832 | 3.06 | 3.86 | 0.409 | -0.0374 | 0.0355 |
| 0,827 | 4,02 | 3.85 | 0.495 | -0.0436 | 0.0462 |
| 0,829 | 5,01 | 3.83 | 0.549 | -0,0444 | 0.0629 |
| 0.828 | 6,0 | 3.85 | 0.601 | -0.0473 | 0.0762 |
| | | | | | |

| Мос | d°c | czc | Cm ^C | C _{XSC} |
|-------|--------|---------|-----------------|------------------|
| 0.702 | -1.75 | -0.225 | -0.0058 | 0.0069 |
| 0.703 | -0.08 | 0.002 | -0.0009 | 0.0068 |
| 0.702 | 1.50 | 0.218 | 0.0042 | 0.0068 |
| 0.703 | 3.22 | 0.483 | 0.0139 | 0.0112 |
| | | | | |
| 0.70 | 1.55 | 0.215 | 0.0045 | 0.0069 |
| 0.704 | 3.15 | 0.601 | 0.0136 | 0.0110 |
| 0.701 | 4.86 | 0.687 | 1310.0 | 0.0295 |
| 0.7 | 5.74 | 0.749 | 0.0191 | 0.0427 |
| 0.699 | 6.67 | 0.797 | 0.0103 | 0.0634 |
| 0.698 | 7.70 | 0.792 | -0.0082 | 0.0854 |
| | | | | |
| 0.753 | -1.67 | -0.269 | -0.0065 | 0.0096 |
| 0.756 | -0.84 | -0.114 | -0.0047 | 0.0073 |
| 0.755 | -0.05 | 0.010 | -0.0003 | 0.0068 |
| 0.754 | 0.74 | 0.124 | 0.0044 | 0.0072 |
| 0.752 | 1.49 | 0.253 | 0.0071 | 0.0088 |
| 0.753 | 2.26 | 0.399 | 0.0067 | 0.0143 |
| 0.754 | 3.02 | 0.523 | 0.0047 | 0.0246 |
| 0.755 | 3.79 | 0.620 | 0.0005 | 0.0372 |
| 0.749 | 4.68 | 0.691 | -0.0017 | 0.0511 |
| 0.749 | 3.05 | 0.724 | -0.0110 | 0.0722 |
| | | | | |
| | | | | |
| | | | | |
| 0.801 | -1.56 | -0.310 | 0.0099 | 0.0207 |
| 0.798 | -0.72 | -0.137 | 0.0018 | 0.0120 |
| 0.801 | 0.03 | 0.005 | 0.0010 | 0.0106 |
| | | | | |
| 0.803 | 0.72 | 0.149 | -0.0035 | 0.0137 |
| 0.799 | 1.25 | 0.300 | -0.0097 | 0.020 |
| 0.801 | 2.0 | 0.435 | -0.0201 | 0.0308 |
| 0.796 | 2.93 | 0.531 | -0.0277 | 0.0402 |
| 0.798 | 3.78 | 0.591 | -0.0377 | 0.0510 |
| | | | | |
| 0.795 | 4.76 | 0.658 | -0.0410 | 0.0709 |
| | | | | |
| | | | | |
| 0.826 | - 1.54 | - 0.266 | 0,0218 | 0.0268 |
| 0.829 | - 0.67 | - 0.137 | 0,0134 | 0.0208 |
| 0.826 | - 0.22 | 0.010 | -0.0016 | 0.0177 |
| 0,827 | 0.50 | 0,166 | -0.0183 | 0.0212 |
| | | | | |
| 0,826 | 1,29 | 0.317 | | 0.0294 |
| 0.827 | 2.06 | 0.407 | -0.0368 | 0.0357 |
| 0,822 | 2.87 | 0.494 | -0.0433 | 0.0466 |
| 0.823 | 3.79 | 0.550 | -0.0443 | 0.0635 |
| 0,820 | 4.78 | 0.605 | -0.0472 | 0.0770 |
| | | | | |

Table 1.4 PRESSURE DISTRIBUTIONS

| MACH | = | 0,30 | RE = | 1.85x10 ⁶ |
|--------|---|-------|------|----------------------|
| AT.PHA | _ | -0,02 | | 1.00010 |

| | M | ODEL | | | W | ALLS | |
|----|---------|------|---------|----|---------|------|---------|
| No | CP | No | CP | No | CP | Na | CP |
| 1 | 0.9980 | 32 | 0.1172 | 1 | 0.0203 | 35 | 0.0551 |
| 2 | -0.1115 | 33 | 0.0513 | 2 | 0.0131 | 36 | -0.0114 |
| 3 | -0.2491 | 34 | 0.0150 | 3 | -0.0008 | 37 | -0.0185 |
| 4 | -0.3847 | 35 | -0.0089 | 4 | -0.0040 | 38 | -0.0171 |
| 5 | -0.4068 | 36 | -0.0345 | 5 | -0.0003 | 39 | -0.0213 |
| 5 | -0.4336 | 37 | -0.0772 | 6 | -0.0024 | 40 | -0.0198 |
| 7 | -0.4188 | 38 | -0.0965 | 7 | -0.0047 | 41 | -0.0211 |
| 8 | -0.4162 | 39 | -0.1157 | 8 | 0.0025 | 42 | -0.0240 |
| 9 | -0.4087 | 40 | -0.1413 | 9 | -0.0045 | 43 | -0.0295 |
| 10 | -0.3987 | 41 | -0.1515 | 10 | -0.0069 | 44 | -0.0225 |
| 11 | -0.3818 | 42 | -0.1664 | 11 | -0.0031 | 45 | -0.0197 |
| 12 | -0.3630 | 43 | -0.1709 | 12 | -0.0205 | 46 | -0.0226 |
| 13 | -0.3495 | 44 | -0.2036 | 13 | -0.0158 | 47 | -0.0252 |
| 14 | -0.3392 | 45 | -0.2039 | 14 | -0.0177 | 48 | -0.0210 |
| 15 | -0.3106 | 46 | -0.2408 | 15 | -0.0248 | 49 | -0.0239 |
| 16 | -0.2261 | 47 | | 16 | 0.0025 | 50 | -0.6339 |
| 17 | -0.2331 | 48 | -0.2935 | 17 | -0.0233 | 51 | -0.0168 |
| 18 | -0.2116 | 49 | -0.3266 | 18 | -0.0266 | 52 | -0.0182 |
| 19 | -0.1948 | 50 | -0.3367 | 19 | -0.0229 | 53 | -0.0154 |
| 20 | -0.1776 | 51 | | 20 | -0.0229 | 54 | -0.0196 |
| 21 | -0.1514 | 52 | -0.3651 | 21 | -0.0177 | 55 | -0.0140 |
| 22 | -0.1455 | 53 | -0.3939 | 55 | -0.0303 | 56 | -0.0168 |
| 23 | -0.1027 | 54 | -0.4029 | 23 | -0.0246 | 57 | -0.0140 |
| 24 | -0.0797 | 55 | -0.4108 | 24 | -0.0276 | 58 | -0.0125 |
| 25 | -0.0746 | 56 | -0.4189 | 25 | -0.0242 | 59 | -0.0111 |
| 26 | -0.0394 | 57 | | 26 | -0.0180 | 60 | -0.0139 |
| 27 | -0.0247 | 58 | | 27 | | 61 | -0.0027 |
| 28 | 0.0064 | 59 | | 28 | -0.0176 | 62 | -0.0013 |
| 29 | 0.0240 | 60 | | 29 | -0.0174 | 63 | 0.0044 |
| 30 | 0.0686 | 61 | -0.4284 | 30 | -0.0220 | 64 | 0.0029 |
| 31 | 0.0996 | 62 | -0.4101 | 31 | -0.0147 | 65 | -0.0041 |
| | | 63 | -0.4129 | 32 | -0.0215 | 66 | 0.0086 |
| | | 64 | -0.3431 | 33 | -0.0083 | 67 | 0.0043 |
| | | 65 | -0.2848 | 34 | 0.0780 | 68 | 0.0086 |
| | | 66 | -0.1336 | | | | |

| | MACH = ALPHA = | 0,5 | | RE = | 2.39 x | 106 |
|----|-------------------|-------|----|------|--------|-----|
| | MOI | DEL | | 1 | MALLS | |
| Nº | CP | N° CP | No | CP | N° I | CP |

| | MOD | <u>- 0.</u> EL | | | WA | LLS | |
|-----|---------|-------------------|---------|----|---------|-----|---------|
| Nº | CP | N° | CP | No | CP | N° | CP |
| 1 | 1.0621 | 32 | .0.1304 | 1 | 0.0350 | 35 | 0.0782 |
| 2 | -0.0965 | 33 | ·0.0588 | 2 | 0.0293 | 36 | 0.0009 |
| 3 4 | -0.2619 | 34 | 0.0255 | 3 | 0.0157 | 37 | -0.0072 |
| 4 | -0.4024 | 35 | -0,0008 | 4 | 0.0147 | 38 | -0.0094 |
| 5 | -0.4310 | 36 | -0.0257 | 5 | 0.0163 | 39 | -0.0128 |
| 6 | -0.4641 | 37 | -0.0632 | 6 | 0.0156 | 40 | -0.0134 |
| 7 | -0.4667 | 38 | -0.0953 | 7 | 0.0130 | 41 | -0.0145 |
| 8 | -0.4468 | 39 | -9.1240 | 8 | 0.0202 | 42 | -0.0178 |
| 9 | -0.4476 | 40 | -0.1430 | 9 | 0.0152 | 43 | -0.0252 |
| 10 | -0.4340 | 41 | -0.1636 | 10 | 0.0132 | 44 | -0.0172 |
| 11 | -0.4120 | 42 | -0.1766 | 11 | 0.0168 | 45 | -0.0133 |
| 12 | -0.3843 | 43 | -0.1868 | 12 | 0.0011 | 46 | -0.0139 |
| 13 | -0.3760 | 44 | -0.2188 | 13 | 0.0041 | 47 | -0.0150 |
| 14 | -0.3688 | 45 | -0.2243 | 14 | -0.0023 | 48 | -0.0150 |
| 15 | -0.2979 | 46 | -0.2590 | 15 | -0.0094 | 49 | -0.0122 |
| 16 | -0.2524 | 47 | -0.2695 | 16 | 0.0216 | 50 | -0.0043 |
| 17 | -0.2495 | 48 | -0.2891 | 17 | -0.0096 | 51 | -0.0076 |
| 18 | 0.2289 | 49 | -0.3503 | 18 | -0.0060 | 52 | -0.0077 |
| 19 | -0.2081 | 50 | -0.3759 | 19 | -0.0072 | 53 | -0.0054 |
| 20 | 0.1779 | 51 | -0.3918 | 20 | -0.0080 | 54 | -0.0037 |
| 21 | -0.1554 | 52 | -0.4093 | 21 | -0.0018 | 55 | -0.0020 |
| 22 | 0.1461 | 53 | -0.4336 | 22 | -0.0168 | 56 | -0.0026 |
| 23 | 0.1005 | 54 | -0.4429 | 23 | -0.0077 | 57 | 0.0053 |
| 24 | 0.0813 | 55 | -0.4522 | 24 | -0.0113 | 58 | 0.0053 |
| 25 | 0.0645 | 56 | -0.4626 | 25 | -0.0103 | 59 | 0.0155 |
| 26 | -0.0452 | 57 | -0.4749 | 26 | -0.0061 | 60 | 0.0104 |
| 27 | -0.0324 | 58 | -0.4764 | 27 | -0.0050 | 61 | 0.0104 |
| 28 | 0.0177 | 59 | -0.4759 | 28 | -0.0055 | 62 | 0.0109 |
| 29 | 0.0404 | 60 | -0.4752 | 29 | -0.0051 | 63 | 0.0143 |
| 30 | 0.0727 | 61 | -0.4684 | 30 | -0.0076 | 64 | 0.0110 |
| 31 | 0.1101 | 62 | -0.4520 | 31 | -0.0032 | 65 | 0.0076 |
| | | 63 | -0.4546 | 32 | -0.0098 | 66 | 0.0143 |
| | | 64 | -0.3777 | 33 | 0.0091 | 67 | 0.0098 |
| | | 65 | -0.2810 | 34 | 0.1007 | 68 | 0.0036 |
| | | 66 | -0.1355 | | | | ,0 |
| | | | , | | | | |

| | ALPHA = | -0 | 05 | | 2.1 | | |
|-------|---------|----------|---------|----|---------|------|---------|
| | M | ODEL | | | W | ALLS | |
| N° | CP | N° | CP | No | CP | N° | CP |
| 1 | 1.1252 | 32 | 0.1675 | 1 | 0.0401 | 35 | 0.0896 |
| | -0.0193 | 33 | 0.0746 | 2 | 0.0294 | 36 | -0.0013 |
| 2 3 4 | -0.2345 | 34 | 0.0360 | | 0.0152 | 37 | -0.0094 |
| 4 | -0.4544 | 35 | 0.0038 | 3 | 0.0144 | 38 | -0.0107 |
| 5 | -0.4958 | 35 36 | -0.0271 | | 0.0170 | 39 | -0.0154 |
| 6 | -0.5662 | 37 | -0.0594 | 5 | 0.0158 | 40 | -0.0144 |
| 7 | -0.5864 | 38 | -0.1014 | 7 | 0.0178 | 41 | -0.0184 |
| 8 | -0.5840 | 39 | -0.1329 | 8 | 0.0247 | 42 | -0.0235 |
| 9 | -0.5865 | 40 | -0.1578 | 9 | 0.0173 | 43 | -0.0712 |
| 10 | -0.5691 | 41 | -0.1309 | 10 | 0.0261 | 44 | -0.0238 |
| 11 | -0.5419 | 42 | -0.2015 | 11 | 0.0171 | 45 | -0.0198 |
| 12 | -0.4958 | 43 | -0.2168 | 12 | -0.0016 | 46 | -0.0201 |
| 13 | -0.3759 | 44 | -0.2474 | 13 | 0.0039 | 47 | -0.0221 |
| 14 | -0.4391 | 45 | -0.2675 | 14 | -0.0037 | 48 | 0.0212 |
| 15 | -0.3815 | 46 | -0.3043 | 15 | -0.0087 | 49 | -0.0189 |
| 16 | -0.3241 | 47 | -0.3231 | 16 | 0.0154 | 50 | -0.0182 |
| 17 | -0.3155 | 48 | -0.3552 | 17 | -0.0156 | 51 | -0.0135 |
| 18 | -0.2868 | 49 | -0.3849 | 18 | -0.0149 | 52 | -0.0128 |
| 19 | -0.2602 | 50 | -0.4297 | 19 | -0.0146 | 53 | -0.0104 |
| 20 | -0.2157 | 51 | -0.4863 | 50 | -0.0171 | 54 | 0.0071 |
| 21 | -0.1324 | 52 | -0.5084 | 21 | -0.0110 | 55 | 0.0037 |
| 55 | -0.1683 | 53 | -0.5449 | 55 | -0.0272 | 56 | 0.0020 |
| 23 | -0.1171 | 54 | -0.5614 | 23 | -0.0166 | 57 | 0.0047 |
| 24 | -0.0915 | 55 | -0.5692 | 24 | -0.0202 | 58 | 0.0084 |
| 25 | -0.0714 | 56 | -0.5857 | 25 | 0.0189 | 59 | 0.0090 |
| 26 | -0.0354 | 57 | -0.6004 | 26 | 0.0127 | 60 | 0.0154 |
| 27 | -0.0143 | 58 | -0.5959 | 27 | -0.0130 | 61 | 0.0174 |
| 58 | 0.0249 | 59 | -0.5873 | 58 | -0.0117 | 62 | 0.0205 |
| 29 | 0.0555 | 60 | -0.5644 | 29 | -0.0069 | 63 | 0.0218 |
| 30 | 0.1008 | 61 | -0.5556 | 30 | -0.0095 | 64 | 0.0141 |
| 31 | 0.1449 | €2 | -0.5204 | 31 | -0.0051 | 65 | 0.0100 |
| | | 63 | -0.5058 | 32 | -0.0150 | 66 | 0.0177 |
| | | 64 | -0.3780 | 33 | 0.0046 | 67 | 0.0103 |
| | | 65 | -0.2391 | 34 | 0.1165 | 68 | 0.0028 |
| | | 66 | -0.0464 | | | | |

MACH = 0.756 RE = 4.01×10^6

| | ALPHA = | EL | | | WΛ | LLS | |
|-----|---------|----|---------|-----|----------|----------|---------|
| N° | CP | N° | CP | N° | CP | N° | CP |
| 1 | 1.1452 | 32 | 0.1801 | 1 | 0.0442 | 35 | 0.1019 |
| 2 | 0.0414 | 33 | 0.0845 | 2 | 0.0330 | 36 | 0.0018 |
| 3 | -0.1827 | 34 | 0.0431 | 3 | 0.0162 | 37 | -0.0073 |
| 3 | -0.4264 | 35 | 0.0107 | 3 4 | 0.0188 | 38 | -0.0094 |
| 5 | -0.4752 | 36 | -0.0220 | 5 | 0.0205 | 39 | -0.0113 |
| 6 | -0.5886 | 37 | -0.0534 | 5 | 0.0234 | 40 | -0.0121 |
| 7 | -0.6318 | 38 | -0.1022 | 7 | 0.0247 | 41 | -0.0163 |
| 7 8 | -0.6743 | 39 | -0.1357 | 8 | 0.0311 | 42 | 0.0221 |
| 9 | -0.6977 | 40 | -0.1633 | 9 | 0.0281 | 43 | -0.0334 |
| 10 | -0.6719 | 41 | -0.1844 | 10 | 0.0328 | 44 | 0.0240 |
| 11 | -0.6272 | 42 | -0.2088 | 11 | 0.0250 | 45 | -0.0209 |
| 12 | -0.5554 | 43 | -0.2275 | 12 | 0.0049 | 46 | 0.0209 |
| 13 | -0.4108 | 44 | -0.2589 | 13 | 0.0092 | 47 | 0.0241 |
| 14 | -0.4863 | 45 | -0.2874 | 14 | 0.0010 | 48 | 0.0234 |
| 15 | -0.4136 | 46 | -0.3267 | 15 | -0.0057 | 49 | 0.0213 |
| 16 | -0.3447 | 47 | -0.3528 | 16 | 0.0216 | 50 | 0.0198 |
| 17 | -0.3345 | 48 | -0.3868 | 17 | -0.0141 | 51 | -0.0143 |
| 18 | -0.3059 | 49 | -0.4206 | 18 | -0.0127 | 52 | 0.0125 |
| 19 | -0.2764 | 50 | -0.4915 | 19 | -0.0133 | 53 | 0.0098 |
| 20 | -0.2234 | 51 | -0.5564 | 20 | -0.0169 | 53 54 | 0.0049 |
| 21 | -0.1901 | 52 | -0.5950 | 21 | -0.0120 | 55 | 0.0027 |
| 22 | -0.1739 | 53 | -0.6448 | 55 | -0.0275 | 56 | 0.0003 |
| 23 | -0.1178 | 54 | -0.6625 | 23 | -0.0162 | 57 | 0.0038 |
| 24 | -0.0915 | 55 | -0.6856 | 24 | -0.0197 | 58 | 0.0134 |
| 25 | -0.0681 | 56 | -0.7143 | 25 | -0. 0182 | 59 | 0.0141 |
| 26 | -0.0342 | 57 | -0.7202 | 26 | -0.0134 | 60 | 0.0235 |
| 27 | -0.0094 | 58 | -0.6924 | 27 | -0.0096 | 61 | 0.0241 |
| 28 | 0.0353 | 59 | -0.6623 | 28 | -0.0088 | 62 | 0.0265 |
| 29 | 0.0649 | 60 | -0.6211 | 29 | -0.0031 | 63 | 0.0302 |
| 30 | 0.1109 | 61 | -0.5769 | 30 | -0.0051 | 64 | 0.0192 |
| 31 | 0.1572 | 62 | -0.5462 | 31 | -0.0022 | 65 | 0.0137 |
| | | 63 | -0.5240 | 32 | -0.0118 | 166 | 0.0192 |
| | | 64 | -0.3676 | 33 | 0.0076 | 67 | 0.0119 |
| | | 65 | -0.2062 | 34 | 0. 1284 | 68 | 0.0033 |
| | | 66 | -0.0195 | | | | |

Table 1.4 PRESSURE DISTRIBUTIONS (CON'D)

| MACH = 0,803 ALPHA = 0.05 RE = 4.09 x 10 ⁶ |
|--|
| |

| N8 | | ALPHA = | 0. | 05 | | | | |
|--|----|---------|---------|---------|-------|---------|-----|---------|
| 1 1.1677 32 0.2003 1 0.0495 35 0.11 2 0.1009 33 0.1046 2 0.0360 36 0.00 3 0.0168 37 -0.03 4 -0.3696 35 0.0508 4 0.0225 38 -0.01 5 -0.4149 36 -0.033 5 0.0275 39 -0.01 6 -0.5984 37 -0.0325 6 0.0306 40 -0.01 8 -0.6845 39 -0.1113 8 0.0422 42 -0.03 9 -0.7245 40 -0.1373 9 0.0382 43 -0.03 10 -0.7604 41 -0.1564 10 0.0348 44 -0.03 11 -0.7740 42 -0.1719 11 0.0321 45 -0.03 11 -0.7740 42 -0.1719 11 0.0321 45 -0.03 11 -0.8060 44 -0.1959 13 0.0131 47 -0.03 11 -0.8279 45 -0.1940 14 0.056 48 -0.03 15 -0.8866 44 -0.1959 15 0.0131 47 -0.03 16 -0.3267 47 -0.2155 16 0.0177 50 -0.03 17 -0.1841 48 -0.7910 17 -0.0175 51 -0.03 18 -0.2164 49 -0.8381 18 -0.0177 55 -0.03 19 -0.2164 50 -0.8499 19 -0.017 55 -0.03 20 -0.1939 51 -0.8321 20 -0.0218 54 -0.03 21 -0.1636 52 -0.8114 21 -0.0184 55 -0.03 22 -0.1532 53 -0.7929 22 -0.0218 54 -0.03 23 -0.1033 54 -0.7716 23 -0.0219 57 0.01 24 -0.0730 55 -0.7567 24 -0.0258 58 0.03 25 -0.0505 56 -0.7397 25 -0.0219 57 0.01 26 -0.0157 57 -0.7114 26 -0.0184 55 -0.03 27 -0.0100 58 -0.6635 27 -0.0128 61 0.03 28 0.0526 59 -0.6188 28 -0.0106 62 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0058 67 0.03 30 0.1276 61 -0.5221 30 -0.0059 64 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 64 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 65 0.03 30 0.1276 61 -0.5221 30 -0.0059 67 0.03 30 0.1276 61 -0.5221 30 -0.0059 67 0.03 30 0.1276 61 -0.5221 30 -0.0059 67 0.03 30 0.1276 61 -0.5221 30 -0.0059 67 0.03 30 0.1276 61 -0.5221 30 -0.0059 67 0.03 30 0.1276 61 -0.5221 | | | | | WALLS | | | |
| 2 | No | CP | No | CP | No | | | |
| 3 | 1 | 1.1677 | 35 | | | | | 0.1122 |
| 3 | 2 | 0.1009 | | | | | | 0.0032 |
| 5 | 3 | -0.1212 | | | | | | -0.0098 |
| 6 | 24 | -0.3696 | | | | | | -0.0100 |
| 6 | 5 | -0.4149 | | | | | | -0.0122 |
| 8 | 6 | -0.5484 | | | | | 100 | -0.0120 |
| 8 | 7 | -0.5926 | | | | | | -0.0162 |
| 10 -0.7604 41 -0.1564 10 0.0348 44 -0.02 11 -0.7740 42 -0.1719 11 0.0321 45 -0.02 12 -0.8060 44 -0.1959 13 0.0103 47 -0.02 13 -0.8060 44 -0.1959 13 0.0131 47 -0.02 14 -0.8279 45 -0.1840 14 0.0056 48 -0.02 15 -0.7818 46 -0.1878 15 -0.052 49 -0.02 16 -0.3267 47 -0.2155 16 0.0177 50 -0.02 17 -0.1841 48 -0.7910 17 -0.0175 51 -0.03 18 -0.2164 49 -0.8381 18 -0.0194 52 -0.03 19 -0.2164 50 -0.8499 19 -0.0197 55 -0.03 20 -0.1939 51 -0.8321 20 -0.0218 54 -0.03 21 -0.1636 52 -0.8114 21 -0.0184 55 -0.03 22 -0.1532 53 -0.7929 22 -0.0348 56 0.03 23 -0.1033 54 -0.7716 23 -0.0219 57 0.03 24 -0.0730 55 -0.7567 24 -0.0258 58 0.02 25 -0.0505 56 -0.7397 25 -0.0230 59 0.02 26 -0.0157 57 -0.7114 26 -0.0182 60 0.03 28 0.0526 59 -0.6188 28 -0.0110 62 0.03 28 0.0526 59 -0.6188 28 -0.0110 62 0.03 30 0.1276 61 -0.5221 30 0.0059 64 0.03 31 0.1753 62 -0.4876 31 -0.0043 65 0.03 65 -0.1492 34 0.1331 68 -0.03 | 8 | -0.6845 | | | 100 | | | -0.0230 |
| 11 | 9 | -0.7245 | 101.000 | | | | | -0.0343 |
| 12 | 10 | -0.7604 | | | | | | -0.0278 |
| 12 -0.8060 44 -0.1959 13 0.0131 47 -0.00 14 -0.8279 45 -0.1940 14 0.0056 48 -0.02 15 -0.7818 46 -0.1878 15 -0.0052 49 -0.00 16 -0.3267 47 -0.2155 16 0.0177 50 -0.00 17 -0.1841 48 -0.7910 17 -0.0175 51 -0.01 18 -0.2164 49 -0.8381 18 -0.0194 52 -0.01 19 -0.2164 50 -0.8499 19 -0.0197 55 -0.01 20 -0.1939 51 -0.8321 20 -0.0218 54 -0.00 21 -0.1636 52 -0.8114 21 -0.0184 55 -0.00 22 -0.1532 53 -0.7929 22 -0.0348 56 0.00 23 -0.1033 54 -0.7716 23 -0.0219 57 0.01 24 -0.0730 55 -0.7567 24 -0.0258 58 0.00 25 -0.0556 59 -0.6188 28 -0.0126 61 0.03 28 0.0526 59 -0.6188 28 -0.0106 62 0.03 29 0.0836 60 -0.5601 29 -0.0050 63 0.03 30 0.1276 61 -0.5221 30 -0.0053 65 0.03 31 0.1753 62 -0.4876 31 -0.0043 65 0.00 64 -0.3094 33 0.0058 67 0.03 65 -0.1492 34 0.1331 68 -0.00 | | -0.7740 | | | | | | -0.0255 |
| 14 -0.8279 45 -0.1940 14 0.0056 48 -0.02 15 -0.7818 46 -0.1878 15 -0.0052 49 -0.02 16 -0.3267 47 -0.2155 16 0.0177 50 -0.00 17 -0.1841 48 -0.7910 17 -0.0175 51 -0.01 18 -0.2164 49 -0.8381 18 -0.0194 52 -0.01 20 -0.1939 51 -0.8321 20 -0.0218 54 -0.00 21 -0.1636 52 -0.8114 21 -0.0184 55 -0.02 22 -0.1532 53 -0.7929 22 -0.0348 56 0.00 23 -0.01035 54 -0.716 23 -0.0219 57 0.01 24 -0.0730 55 -0.7567 24 -0.0258 58 0.02 25 -0.0505 56 | | -0.8005 | | | | | | -0.0254 |
| 15 | | | | | | | | -0.0297 |
| 16 | | | | | - | 0.0056 | | -0.0295 |
| 17 | | | | | | | | -0,0265 |
| 18 -0.2164 49 -0.8381 18 -0.0194 52 -0.01 19 -0.2164 50 -0.8499 19 -0.0197 53 -0.00 20 -0.1939 51 -0.8321 20 -0.0218 54 -0.00 21 -0.1636 52 -0.8114 21 -0.0184 55 -0.00 22 -0.1532 53 -0.7929 22 -0.0348 56 -0.00 23 -0.1033 54 -0.7716 23 -0.0219 57 0.00 24 -0.0750 55 -0.7567 24 -0.0239 59 0.02 25 -0.0505 56 -0.7567 24 -0.0182 60 0.02 26 -0.0157 57 -0.7114 26 -0.0182 60 0.03 27 -0.0100 58 -0.6635 27 -0.0128 61 0.03 28 0.0526 59 | 16 | | | | | | | -0.0254 |
| 19 | | | | | | | | -0.0198 |
| 20 | 18 | | 49 | | | | | -0.0161 |
| 21 | 19 | -0.2164 | 50 | | 19 | | | -0.0104 |
| 22 | 20 | -0.1939 | 51 | | 20 | | | -0.0047 |
| 23 | 21 | -0.1636 | 52 | | | | | -0.0001 |
| 24 -0.0730 55 -0.7567 24 -0.0258 58 0.02 25 -0.0505 56 -0.7397 25 -0.0230 59 0.02 26 -0.0157 57 -0.7114 26 -0.0182 60 0.03 28 0.0526 59 -0.6188 28 -0.0110 62 0.03 29 0.0836 60 -0.5601 29 -0.0050 63 0.03 30 0.1276 61 -0.5221 30 -0.0059 64 0.03 31 0.1753 62 -0.4876 31 -0.0043 65 0.02 63 -0.4662 32 -0.0161 66 0.02 64 -0.3094 33 0.0058 67 0.06 65 -0.1492 34 0.1331 68 -0.00 | 55 | -0.1532 | 53 | -0.7929 | 55 | -0.0348 | 56 | 0.0044 |
| 25 | 23 | -0.1033 | 54 | -0.7716 | | -0.0219 | | 0.0132 |
| 26 -0.0157 57 -0.7114 26 -0.0182 60 0.03 27 -0.0100 58 -0.6635 27 -0.0128 61 0.03 28 0.0526 59 -0.6188 28 -0.0110 62 0.03 29 0.0836 60 -0.5601 29 -0.0050 63 0.03 30 0.1276 61 -0.5221 30 -0.0059 64 0.03 31 0.1753 62 -0.4876 31 -0.0043 65 0.03 63 -0.4662 32 -0.0161 66 0.03 64 -0.3994 33 0.0058 67 0.03 65 -0.1492 34 0.1331 68 -0.00 | 24 | -0.0730 | | -0.7567 | 24 | -0.0258 | | 0.0203 |
| 27 | 25 | -0.0505 | .56 | | | -0.0230 | | 0.0231 |
| 28 | 26 | -0.0157 | 57 | -0.7114 | 26 | -0.0182 | 60 | 0.0338 |
| 28 | 27 | .0.0100 | 58 | | 27 | -0.0128 | | 0.0352 |
| 30 0.1276 61 -0.5221 30 -0.0059 64 0.00 31 0.1753 62 -0.4876 31 -0.0043 65 0.00 63 -0.4662 32 -0.0161 66 0.00 64 -0.3094 33 0.0058 67 0.01 65 -0.1492 34 0.1331 68 -0.00 | 28 | 0.0526 | 59 | | 28 | -0.0110 | | 0.0384 |
| 30 0.1276 61 0.5221 30 0.0059 64 0.00 31 0.1753 62 0.4876 31 0.0043 65 0.00 63 0.4662 32 0.0161 66 0.00 64 0.3094 33 0.0058 67 0.01 65 0.1492 34 0.1331 68 -0.00 | 29 | 0.0836 | 60 | -0.5601 | 29 | -0.0050 | | 0.0387 |
| 31 0.1753 62 0.4876 31 0.0043 65 0.00 63 0.4662 32 0.0161 66 0.00 64 0.3094 33 0.0058 67 0.01 65 0.1492 34 0.1331 68 -0.00 | | 0.1276 | 61 | -0.5221 | 30 | 0.0059 | | 0.0280 |
| 63 -0.4662 32 -0.0161 66 0.00 64 -0.3094 33 0.0058 67 0.01 65 -0.1492 34 0.1331 68 -0.00 | | 0.1753 | 62 | -0.4876 | 31 | | 65 | 0.0204 |
| 65 0.1492 34 0.1331 68 -0.00 | | | | | | 0.0161 | | 0.0241 |
| 65 0.1492 34 0.1331 68 -0.00 | | | 64 | -0.3094 | 33 | 0.0058 | | 0.0142 |
| 66 0 0466 | | | 65 | -0.1492 | | 0.1331 | 68 | -0.0023 |
| 00 0.0.00 | | | 66 | 0.0466 | | | | |
| | | | | | | | | |

| MODEL | WALLS |
|-----------------------------|-------------------------|
| MACH = 0.829 $ALPHA = 0.05$ | $RE = 4.08 \times 10^6$ |

| MODEL | | | | | WALLS | | | | |
|--|---|---|--|--|--|--|---|--|--|
| No | CP | No | CP | N° | CP | N° | CP | | |
| 1 2 3 4 5 6 7 8 9 10 | 1.1785 0.1341 -0.0717 -0.3244 -0.3688 -0.5063 -0.5449 -0.6492 -0.6886 -0.7182 | 32 33 34 35 36 37 38 39 40 41 | 0.2153 0.1269 0.0877 0.0594 0.0317 0.0070 -0.0223 -0.0431 -0.0503 -0.0535 | 1 2 3 4 5 6 7 8 9 10 | 0.0531 0.0381 0.0178 0.0271 0.0347 0.0384 0.0446 0.0529 0.0509 | 35 36 37 38 39 40 41 42 43 44 | 0.1140 0.0019 -0.0098 -0.0112 -0.0144 -0.0152 -0.0196 -0.0267 -0.0397 -0.0344 | | |
| 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | -0.7337 -0.7744 -0.8230 -0.8424 -0.8250 -0.7852 -0.7757 -0.5482 -0.0640 -0.0640 -0.0734 -0.0129 -0.0129 0.0375 0.0375 0.0772 0.1072 | 42 44 45 44 47 48 49 50 51 52 57 55 57 55 57 58 59 60 60 60 | -0.0628 -0.1322 -0.4231 -0.7810 -0.8069 -0.8509 -0.8444 -0.8206 -0.77510 -0.7510 -0.7289 -0.6195 -0.6165 -0.5716 -0.5073 -0.4742 -0.4383 | 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 30 31 32 | 0.0445 0.0210 0.0204 0.0108 -0.0015 0.0174 -0.0221 -0.0243 -0.0290 -0.0257 -0.0416 -0.0320 -0.0287 -0.0167 -0.0167 -0.0166 -0.0066 -0.0074 -0.0066 | 454474849555555555555555666666666666666666666 | -0.0330 -0.0335 -0.0377 -0.0383 -0.0368 -0.0345 -0.0211 -0.0216 -0.0141 -0.0008 0.0020 0.0079 0.0219 0.025 0.0339 0.0459 0.0489 0.0500 0.0489 0.0500 0.0489 0.0282 0.0282 0.0298 | | |
| | | 64 65 66 | -0.2558 -0.1026 0.0890 | 33 34 | 0.0062 0.1425 | 67 68 | 0.0156 -0.0036 | | |

MACH = 0.3 ALPHA = 4.04

RE =1.86 x 106

MACH = 0,504 RE = 2.93 x 106

| MODEL | | | | | WALLS | | | |
|-------|---------|----|---------|-----|---------|----|---------|--|
| N° | CP | N° | CP | N° | CP | N° | CP | |
| 1 | 0.5702 | 32 | 0.1173 | 1 | 0.0136 | 35 | 0.0084 | |
| 2 | 0.5750 | 33 | 0.0377 | 2 | 0.0124 | 36 | -0.0368 | |
| 3 4 | 0.3896 | 34 | 0.0011 | 3 4 | -0.0044 | 37 | -0.0439 | |
| 4 | 0.1498 | 35 | -0.0409 | 4 | -0.0018 | 38 | -0.0510 | |
| 5 | 0.0729 | 36 | -0.0732 | 5 | -0.0003 | 39 | -0.0567 | |
| 6 | 0.0054 | 37 | -0.1029 | | -0.0041 | 40 | -0.0567 | |
| 7 | -0.0268 | 38 | -0.1465 | 7 8 | 0.0030 | 41 | -0.0581 | |
| 8 | -0.1013 | 39 | -0.1721 | | 0.0082 | 42 | -0.0567 | |
| 9 | -0.1121 | 40 | -0.1971 | 9 | 0.0068 | 43 | -0.0652 | |
| 10 | -0.1481 | 41 | -0.2199 | 10 | 0.0103 | 44 | -0.0596 | |
| 11 | -0.1481 | 42 | -0.2379 | 11 | 0.0200 | 45 | -0.0582 | |
| 12 | -0.1346 | 43 | -0.2523 | 12 | 0.0046 | 46 | -0.0552 | |
| 13 | -0.1392 | 44 | -0.2964 | 13 | 0.0117 | 47 | -0.0553 | |
| 14 | -0.1591 | 45 | -0.3114 | 14 | 0.0106 | 48 | -0.0553 | |
| 15 | -0.1411 | 46 | -0.3510 | 15 | 0.0082 | 49 | -0.0539 | |
| 16 | -0.1129 | 47 | -0.3720 | 16 | 0.0330 | 50 | -0.0552 | |
| 17 | -0.1397 | 48 | -0.4174 | 17 | 0.0013 | 51 | -0.0525 | |
| 18 | -0.1386 | 49 | -0.4564 | 18 | 0.0110 | 52 | -0.0613 | |
| 19 | -0.1049 | 50 | -0.4983 | 19 | 0.0134 | 53 | -0.0526 | |
| 50 | -0.0887 | 51 | -0.5362 | 50 | 0.0108 | 54 | -0.0497 | |
| 21 | -0.0778 | 52 | -0.5576 | 21 | 0.0181 | 55 | -0.0493 | |
| 25 | -0.0701 | 53 | -0.5927 | 55 | 0.0063 | 56 | -0.0525 | |
| 23 | -0.0254 | 54 | -0.6338 | 23 | 0.0122 | 57 | -0.0411 | |
| 24 | -0.0146 | 55 | -0.6653 | 24 | 0.0046 | 58 | -0.0440 | |
| 25 | -0.0173 | 56 | -0.6653 | 25 | 0.0084 | 59 | -0.0427 | |
| 26 | 0.0136 | 57 | -0.7122 | 26 | 0.0119 | 60 | -0.0370 | |
| 27 | 0.0068 | 58 | -0.7679 | 27 | 0.0072 | 61 | -0.0298 | |
| 28 | 0.0445 | 59 | -0.8402 | 58 | 0.0035 | 65 | -0.0271 | |
| 29 | 0.0445 | 60 | -0.8851 | 29 | -0.0003 | 63 | -0.0157 | |
| 30 | 0.0781 | 61 | -0.9120 | 30 | -0.0050 | 64 | -0.0115 | |
| 31 | 0.0982 | 62 | -0.9194 | 31 | -0.0085 | 65 | -0.0101 | |
| | | 63 | -0.9717 | 32 | -0.0158 | 66 | -0.0001 | |
| | 1 | 64 | -1.0495 | 33 | 0.0028 | 67 | -0.0016 | |
| | | 65 | -1.1854 | 34 | 0.0913 | 68 | -0.0242 | |
| | | 66 | -1.1898 | | | | | |

| | M | | WALLS | | | | |
|----|---------|----|---------|----------|--------|----|---------|
| N° | CP | N° | CP | N° | CP | N° | CP |
| 1 | 0.7056 | 32 | 0.1377 | 1 | 0.0339 | 35 | 0.0252 |
| 2 | 0.6124 | 33 | 0.0444 | 2 | 0.0272 | 36 | -0.0246 |
| 3 | 0.4186 | 34 | 0.0028 | 3 | 0.0163 | 37 | -0.0347 |
| 4 | 0.1616 | 35 | -0.0386 | 3 4 | 0.0160 | | -0.0370 |
| 5 | 0.1093 | 36 | -0.0625 | 5 | 0.0186 | 39 | -0.0426 |
| 5 | 0.0081 | 37 | -0.0918 | 5 | 0.0212 | 40 | -0.0404 |
| 7 | -0.0357 | 38 | -0.1391 | 7 | 0.0231 | 41 | -0.0443 |
| 8 | -0.1172 | 39 | -0.1785 | 8 | 0.0327 | 42 | -0.0527 |
| 9 | -0.1306 | 40 | -0.2057 | 9 | 0.0351 | 43 | -0.0571 |
| 10 | -0.1381 | 41 | 0.2316 | 10 | 0.0401 | 44 | -0.0520 |
| 11 | -0.1369 | 42 | 0.2565 | 11 | 0.0471 | 45 | -0.0487 |
| 12 | -0.1506 | 43 | -0.2815 | 12 | 00347 | 46 | -0.0482 |
| 13 | -0.1597 | 44 | -0.3174 | 13 | 0.0408 | 47 | -0.0523 |
| 14 | -0.1658 | 45 | -0.3417 | 14 | 0.0372 | 48 | -0.0494 |
| 15 | -0.1497 | 46 | 0.3892 | 15 | 0.0357 | 49 | -0.0476 |
| 16 | -0.1277 | 47 | -0.4116 | 16 | 0.0604 | 50 | -0.0477 |
| 17 | -0.1317 | 43 | 0.4664 | 17 | 0.0333 | 51 | -0.0445 |
| 18 | -0.1199 | 49 | -0.5148 | 18 | 0.0355 | 52 | -0.0420 |
| 19 | -0.1120 | 50 | 0.5622 | 19 | 0.0361 | 53 | -0.0410 |
| 50 | -0.0935 | 51 | 0.5986 | 20 | 0.0357 | 54 | -0.0354 |
| 21 | -0.0542 | 52 | 0.6319 | 21 | 0.0407 | 55 | -0.0347 |
| 55 | -0.0569 | 53 | 0.6688 | 22 | 0.0271 | 56 | -0.0341 |
| 23 | -0.0408 | 54 | 0.7134 | 23 | 0.0358 | 57 | -0.0275 |
| 24 | -0.0200 | 55 | 0.7523 | 24 | 0.0321 | 58 | -0.0253 |
| 25 | -0.0288 | 56 | 0.7679 | 25 | 0.0317 | 59 | -0.0230 |
| 26 | 0.0080 | 57 | 0.8012 | 26 | 0.0364 | 60 | -0.0135 |
| 27 | 0.0128 | 58 | 0.8409 | 27 | 0.0300 | 61 | -0.0118 |
| 28 | 0.0405 | 59 | 0.9505 | 28 | 0.0291 | 62 | -0.0062 |
| 29 | 0.0458 | 60 | 1.0079 | 29 | 0.0230 | 63 | -0.0006 |
| 30 | 0.0862 | 61 | 1.0295 | 30 | 0.0170 | 64 | 0.0005 |
| 31 | 0.1138 | 62 | 1.0349 | 31 | 0.0158 | 65 | -0.0006 |
| | | 63 | 1.0947 | 32 | 0.0012 | 66 | 0.0112 |
| | | 64 | 1.1965 | 33 34 | 0.0248 | 67 | 0.0067 |
| | | 65 | 1.2935 | 34 | 0.1244 | 68 | -0.0012 |
| | | 66 | 1.2863 | | | 1 | |

MACH = 0.60 RE = 4.65×10^6

| MODEL | | | | | WALLS | | |
|-------|---------|----|---------|------------|--------|----|--------|
| N° | CP | No | CP | No | CP | N° | CP |
| 1 | 0.8110 | 32 | 0.1643 | 1 | 0.0412 | 35 | 0.032 |
| 2 | 0.6187 | 33 | 0.0664 | 2 | 0.0340 | 36 | -0.024 |
| 3 | 0.4190 | 34 | 0.0230 | 3 | 0.0225 | 37 | -0.030 |
| 4 | 0.1596 | 35 | -0.0085 | 4 | 0.0243 | 38 | -0.032 |
| 5 | 0.1038 | 36 | -0.0476 | 5 | 0.0252 | 39 | -0.039 |
| 6 | -0.0019 | 37 | -0.0868 | 6 | 0.0268 | 40 | -0.036 |
| 7 | -0.0481 | 38 | -0.1351 | 7 8 | 0.0339 | 41 | -0.040 |
| 8 | -0.1269 | 39 | -0.1768 | 8 | 0.0438 | 42 | -0.047 |
| 9 | -0.1428 | 40 | -0.2063 | 9 | 0.0478 | 43 | -0.056 |
| 10 | -0.1495 | 41 | -0.2332 | 10 | 0.0547 | 44 | -0.050 |
| 11 | -0.1484 | 42 | -0.2613 | 11 | 0.0620 | 45 | -0.047 |
| 12 | -0.1615 | 43 | -0.2875 | 12 | 0.0445 | 46 | -0.046 |
| 13 | -0.1663 | 44 | -0.3280 | 13 | 0.0524 | 47 | -0.048 |
| 14 | -0.1767 | 45 | -0.3538 | 14 | 0.0492 | 48 | -0.050 |
| 15 | -0.1555 | 46 | -0.3952 | 15 | 0.0443 | 49 | -0.049 |
| 16 | -0.1294 | 47 | -0.4242 | 16 | 0.0737 | 50 | -0.047 |
| 17 | -0.1336 | 48 | -0.4881 | 17 | 0.0425 | 51 | -0.042 |
| 18 | -0.1121 | 49 | -0.5392 | 18 | 0.0459 | 52 | -0.040 |
| 19 | -0.0799 | 50 | -0.5903 | 19 | 0.0472 | 53 | -0.040 |
| 50 | -0.0718 | 51 | -0.6299 | 50 | 0.0460 | 54 | -0.035 |
| 21 | -0.0525 | 52 | -0.6692 | 51 | 0.0476 | 55 | -0.033 |
| 55 | -0.0535 | 53 | -0.7135 | 55 | 0.0371 | 56 | -0.031 |
| 23 | -0.0248 | 54 | -0.7668 | 23 | 0.0453 | 57 | -0.023 |
| 24 | -0.0120 | 55 | -0.8087 | 24 | 0.0392 | 58 | -0.016 |
| 25 | -0.0031 | 56 | -0.8130 | 25 | 0.0400 | 59 | -0.016 |
| 26 | 0.0187 | 57 | -0.8685 | 56 | 0.0435 | 60 | -0.004 |
| 27 | 0.0261 | 58 | -0.8991 | 27 | 0.0418 | 61 | 0.000 |
| 28 | 0.0595 | 59 | -0.9399 | 2 8 | 0.0380 | 62 | 0.006 |
| 29 | 0.0749 | 60 | -1.0987 | 59 | 0.0292 | 63 | 0.014 |
| 30 | 0.1049 | 61 | -1.1304 | 30 | 0.0231 | 64 | 0.011 |
| 31 | 0.1373 | 62 | -1.1199 | 31 | 0.0201 | 65 | 0.010 |
| | | 63 | -1.1755 | 35 | 0.0007 | 66 | 0.019 |
| | | 64 | -1.2831 | 33 | 0.0278 | 67 | 0.013 |
| | | 65 | -1.3756 | 34 | 0.1358 | 68 | 0.003 |

| | M | ODEL | | | W | ALLS | |
|----------------|---------|------|--------|-----|---------|------|---------|
| N _o | CP | No | CF | No | CP | N° | CP |
| 1 | 0.9258 | 32 | 0.1758 | 1 | 0.0405 | 35 | 0.0292 |
| | | 33 | 0.0301 | 5 | 0.0288 | 36 | -0.0286 |
| 5 | 0.6183 | 34 | 0.0385 | 3 4 | 0.0180 | 37 | -0.036 |
| 3 | 0.4196 | 35 | 0.0010 | 4 | 0.0232 | 38 | -0.0398 |
| | 0.1658 | 36 | 0.0415 | 5 | 0.0299 | 39 | -0.0462 |
| 5 | 0.1070 | 37 | 0.0715 | 6 | 0.0356 | 40 | -0.0448 |
| | -0.0040 | 38 | 0.1248 | 7 | 0.0428 | 41 | -0.0489 |
| 7 | -0.0568 | 39 | 0.1653 | 8 | 0.0543 | 42 | -0.0572 |
| 8 | -0.1425 | 40 | 0,1959 | 9 | 0.0636 | 43 | -0.0654 |
| 9 | -0.1659 | 41 | 0,2236 | 10 | 0.0772 | 44 | -0.0596 |
| 10 | 0.1697 | 42 | 0.2532 | 11 | 0.0767 | 45 | -0.0589 |
| 11 | -0.1712 | 43 | 0,2785 | 15 | 0.0616 | 46 | -0.0597 |
| 15 | -0.1818 | 44 | 0.3112 | 13 | 0.0692 | 47 | -0.0627 |
| 13 | -0.1331 | 45 | 0.3408 | 14 | 0.0649 | 48 | -0.0624 |
| 14 | -0.1969 | 46 | 0.3848 | 15 | 0.0606 | 49 | -0.0637 |
| 15 | -0.1787 | 47 | 0.4078 | 16 | 0.0854 | 50 | -0.0620 |
| 16 | -0.1482 | | 0.4394 | 17 | 0.0571 | 51 | -0.0552 |
| 17 | -0.1503 | 49 | 0.4579 | 18 | 0.0596 | 52 | -0.0543 |
| 18 | -0.1422 | 50 | 0.4507 | 19 | 0.0590 | 53 | -0.0509 |
| 19 | -0.1339 | 51 | 0.5166 | 20 | 0.0557 | 54 | -0.046 |
| 20 | -0.0759 | 52 | 1.3149 | 21 | 0.0590 | 55 | -0.0414 |
| 21 | -0.0609 | 53 | 1.3904 | 22 | 0.0476 | 56 | -0.0374 |
| 25 | 0.0654 | 54 | 1.4324 | 23 | 0.0543 | 57 | -0.0270 |
| 23 | -0.0321 | 55 | 1.4741 | 24 | 0.0476 | 58 | -0.0193 |
| 24 | -0.0171 | 56 | 1.4748 | 25 | 0.0494 | 59 | -0.0172 |
| 25 | -0.0081 | 57 | 1.4485 | 26 | 0.0507 | 60 | -0.0001 |
| 26 | 0.0158 | 58 | 1.4120 | 27 | 0.0471 | 61 | 0.0066 |
| 27 | 0.0242 | | 1.3828 | 28 | 0.0411 | 62 | 0.014 |
| 58 | 0.0574 | | 1.3536 | 29 | 0.0303 | 63 | 0.0221 |
| 29 | D.0782 | | 1.3478 | 30 | 0.0227 | 64 | 0.0188 |
| 30 | 0.1128 | | 1.3371 | 31 | 0.0163 | 65 | 0.0161 |
| 31 | 0.1412 | | 1.3400 | 32 | -0.0025 | 66 | 0.0235 |
| | | | 1.2471 | 33 | 0.0197 | 67 | 0.0127 |
| | | | 1.1663 | 34 | 0.1426 | 68 | -0.0118 |
| | | 66. | 0.9440 | 1 | | | 1 |

MACH = 0.756 RE = 3.76×10^6

| N° CP N° CP< | 296 |
|--|-----|
| 2 0.5974 33 0.1034 2 0.0339 36 -0.0 | |
| 2 0.5974 33 0.1034 2 0.0339 36 -0.0 | |
| | 546 |
| 3 0.4077 34 0.0667 3 0.0185 37 -0.04 | |
| 4 0.1539 35 0.0364 4 0.0327 38 -0.04 | 461 |
| 5 0.0892 36 0.0047 5 0.0414 39 -0.09 | 516 |
| 6 -0.0213 37 -0.0238 6 0.0469 40 -0.09 | 52 |
| 7 -0.0727 38 -0.0626 7 0.0572 41 -0.05 8 -0.1651 39 -0.0921 8 0.0707 42 -0.06 | 56 |
| | 531 |
| 9 -0.1845 40 -0.1107 9 0.0787 43 -0.07 | 721 |
| 10 -0.1964 41 -0.1313 10 0.0930 44 -0.06 | 567 |
| 11 -0.1918 42 -0.1520 11 0.0917 45 -0.06 | 561 |
| 12 -0.2076 43 -0.1717 12 0.0765 46 -0.07 | 725 |
| 13 -0.1515 44 -0.2268 13 0.0830 47 -0.07 | 771 |
| 14 -0.2154 45 -0.2875 14 0.0787 48 -0.07 | 783 |
| 15 -0.1975 46 -0.4184 15 0.0743 49 -0.07 | 80 |
| 16 -0.1630 47 -0.6367 16 0.0990 50 -0.07 | 761 |
| 17 -0.1617 48 -1.2817 17 0.0684 51 -0.07 | 101 |
| 18 -0.1517 49 -1.2959 18 0.0699 52 -0.06 | 559 |
| 19 -0.1405 50 -1.3351 19 0.0688 53 -0.06 | 503 |
| 20 0.0823 51 -1.3470 20 0.0641 54 -0.05 | 519 |
| 21 -0.0620 52 -1.3421 21 0.0650 55 -0.04 | 151 |
| 22 0.0664 53 -1.3375 22 0.0563 56 -0.03 | 534 |
| 23 -0.0317 54 -1.3247 23 0.0621 57 -0.02 | 148 |
| 24 -0.0172 55 -1.3183 24 0.0568 58 -0.01 | 44 |
| 25 -0.0063 56 -1.2919 25 0.0548 59 -0.00 | 796 |
| 26 0.0202 57 -1.2614 26 0.0583 60 0.01 | 05 |
| 27 0.0315 58 -1.2161 27 0.0544 61 0.02 | 20 |
| 28 0.0665 59 -1.1826 28 0.0483 62 0.03 | 505 |
| 29 0.0882 60 -1.1476 29 0.0341 63 0.03 | 60 |
| 30 0.1232 61 -1.1392 30 0.0266 64 0.03 | 505 |
| | 69 |
| 63 -1.1210 32 -0.0051 66 0.03 | 18 |
| 64 -1.0082 33 0.0174 67 0.01 | |
| 65 -0.9121 34 0.1535 68 -0.01 | 66 |
| 66 -0.7002 |)1 |

Table 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.502 <u>ALPHA</u> = 2.06 $RE = 2.91 \times 10^6$

| | MODEL | | | | W | ALLS | |
|----|------------|-----|---------|----|---------|------|---------|
| N° | CP | N°. | CP | N° | CP | N° | CP |
| 1 | 0.9775 | 32 | .0.1395 | 1 | 0.0350 | 35 | 0.0448 |
| 2 | 0.3095 | 33 | 0.0509 | 2 | 0.0293 | 36 | -0.0179 |
| 3 | 0.1139 | 34 | 0.0111 | 3 | 0.0167 | 37. | -0.0253 |
| 4 | -0.1166 | 35 | -0.0164 | 4 | 0.0172 | 38 | -0.0275 |
| 5 | -0.1462 | 36 | -0.0486 | 5 | 0.0160 | 39 | -0.0326 |
| 6 | -0.2361 | 37 | -0.0793 | 6 | 0.0172 | 40 | -0.0320 |
| 7 | -0.2560 | 38 | -0.1183 | 7 | 0.0192 | 41 | -0.0349 |
| 8 | -0.2730 | 39 | -0.1469 | 8 | 0.0245 | 42 | -0.0383 |
| 9 | -0.2946 | 40 | -0.1749 | 9 | 0.0224 | 43 | -0.0451 |
| 10 | -0.2832 | 41 | -0.1956 | 10 | 0.0241 | 44 | -0.0389 |
| 11 | -0.2703 | 42 | -0.2186 | 11 | 0.0285 | 45 | -0.0338 |
| 12 | -0.2690 | 43 | -0.2380 | 12 | 0.0149 | 46 | -0.0337 |
| 13 | -0.2685 | 44 | -0.2676 | 13 | 0.0192 | 47 | -0.0338 |
| 14 | -0.2679 | 45 | -0.2855 | 14 | 0.0132 | 48 | -0.0339 |
| 15 | -0.2467 | 46 | -0.3265 | 15 | 0.0112 | 49 | -0.0316 |
| 16 | -0.2009 | 47 | -0.3370 | 16 | 0.0389 | | -0.0299 |
| 17 | -0.1851 | 48 | -0.3839 | 17 | 0.0070 | 51 | -0.0264 |
| 18 | -0.1696 | 49 | -0.4189 | 18 | 0.0113 | 52 | -0.0254 |
| 19 | -0.1448 | 50 | -0.4515 | 19 | 0.0111 | 53 | -0.0225 |
| 20 | -0.1274 | | -0.4743 | 20 | 0.0096 | 54 | -0.0208 |
| 21 | -0.1036 | 52 | -0.4828 | 21 | 0.0133 | 55 | -0.0214 |
| 22 | -0.1060 | 53 | -0.5479 | 22 | 0.0011 | 56 | -0.0202 |
| 23 | -0.0720 | 54 | -0.5906 | 23 | 0.0082 | 57 | -0.0126 |
| 24 | -0.0522 | 55 | -0.6146 | 24 | 0.0045 | 58 | -0.0112 |
| 25 | -0.0511 | 56 | -0.6366 | 25 | 0.0054 | 59 | -0.0106 |
| 26 | -0.0136 | 57 | -0.6610 | 26 | 0.0104 | | -0.0027 |
| 27 | -0.0055 | 58 | -0.6819 | 27 | 0.0084 | 61 | -0.0005 |
| 28 | 0.0284 | 59 | -0.7060 | 28 | 0.0058 | 62 | 0.0030 |
| 29 | 0.0461 | 60 | -0.7268 | 29 | 0.0057 | 63 | 0.0080 |
| 30 | 0.0816 | 61 | -0.7264 | 30 | 0.0024 | 64 | 0.0052 |
| 31 | 0.1186 | 62 | -0.7339 | 31 | 0.0041 | 65 | 0.0046 |
| | A SOLUTION | 63 | -0.7556 | 32 | -0.0048 | 66 | 0.0125 |
| | | 64 | -0.7430 | 33 | 0.0151 | 67 | 0.0086 |
| | | 65 | -0.7447 | 34 | 0:1149 | 68 | 0.0040 |
| | - | 66 | -0.6492 | | | | |

| | MOD | MODEL | | | WALLS | | |
|----------|---------|----------|--------------------|----------|--------|----------|---------|
| N° | CP | N° | CP | N° | CP | N° | CP |
| 1 | 0.2243 | 32 | 0.1391 | 1 | 0.0341 | 35 | 0.0039 |
| 2 | 0.8195 | 33 | 0.0478 | 2 | 0.0286 | 36 | -0.0391 |
| 3 4 | 0.6508 | 34 | 0.0081 | 3 | 0.0188 | 37 | -0.0458 |
| | 0.3836 | 35 | -0.0280 | 4 | 0.0210 | 38 | -0.0525 |
| 5 | 0.3157 | 36 | -0.0662 | 5 | 0.0255 | 39 | -0.0590 |
| | 0.2049 | 37 | -0.1027 | 6 | 0.0279 | 40 | -0.0579 |
| 7 | 0.1534 | 38 | -0.1605 | | 0.0352 | 41 | -0.0584 |
| 8 | 0.0449 | 39 | -0.2007 | 8 | 0.0481 | 42 | -0.0634 |
| 9 | 0.0162 | 40 | -0.2370 | | 0.0562 | 43 | -0.0684 |
| 10 | 0.0039 | 41 | -0.2621 | 10 | 0.0635 | 44 | -0.0691 |
| 11 | -0.0036 | 42 | -0.2936 | | 0.0741 | 45 | -0.0664 |
| 12 | -0.0382 | 43 | -0.3213 | | 0.0609 | 46 | -0.0646 |
| 13 | -0.0525 | 44 | -0.3599 | 13 | 0.0682 | 47 | -0.0691 |
| 14 | -0.0707 | 45 | -0.3921 | 14 | 0.0630 | 48 | -0.0674 |
| 15 | -0.0516 | 46 | -0.4387 | 15 | 0.0628 | 49 | -0.0641 |
| 16 | -0.0431 | 47 | -0.4732 | | 0.0884 | 50 | -0.0641 |
| 17 | -0.0487 | 48 | -0.5469 | 17 | 0.0603 | 51 | -0.0604 |
| 18 | -0.0552 | 49 | -0.6029 | | 0.0659 | 52 | -0.0570 |
| 19 | -0.0392 | 50 | -0.6581 | 19 | 0.0650 | 53 | -0.0570 |
| 50 | -0.0314 | 51 | -0.7029 | 50 | 0.0625 | 54 | -0.0525 |
| 21 | -0.0281 | 52 | -0.7505 | | 0.0671 | 55 | -0.0502 |
| 25 | -0.0234 | 53 | -0.8108 | 22 | 0.0559 | 56 | -0.0453 |
| 23 | -0.0059 | 54 | -0.8662 | 23 | 0.0619 | 57 | -0.0380 |
| 24 | 0.0170 | 55 | -0.9199 | 24 | 0.0563 | 58 | -0.0335 |
| 25 | 0.0270 | 56 | -0.9497 | 25 | 0.0557 | 59 | -0.0329 |
| 26 | 0.0466 | 57 | -1.0176 | 26 | 0.0604 | 60 | -0.0217 |
| 27 28 | 0.0397 | 58 | -1.0812 | 27 | 0.0534 | 61 | -0.0150 |
| | 0.0041 | 59 60 | -1.1083 | 28 | 0.0468 | 62 | -0.0089 |
| 29 | 0.0982 | 61 | -1.2320 | 29 | 0.0379 | 63 64 | 0.0011 |
| 30 31 | 0.1183 | 65 | -1.3027 -1.3091 | 30 31 | 0.0256 | 65 | 0.0039 |
| 11 | 0.1105 | 63 | -1.3641 | 32 | | 66 | 0.0022 |
| | | 64 | -1.7160 | | 0.0014 | 67 | 0.0145 |
| | | 65 | -1.9819 | 34 | 0.1219 | 68 | -0.0084 |
| | | 66 | -2.1297 | 1 | 0.1219 | 90 | -0.0004 |

| | M | ODEL | | | W | ALLS | |
|-----|---------|------|---------|----|--------|------|----------|
| No | CP | N° | CP | No | CP | No | CP |
| 1 | -0.3212 | 32 | 0.1199 | 1 | 0.0335 | 35 | -0.0104 |
| 2 | 0.9500 | 33 | 0.0480 | 2 | 0.0286 | 36 | -0.0493 |
| 3 | 0.8216 | 34 | 0.0089 | 3 | 0.0176 | 37 | -0.049 |
| 4 | 0.5659 | 35 | -0.0355 | 4 | 0.0251 | 38 | -0.0599 |
| 5 | 0.4984 | | -0.0698 | 5 | 0.0327 | 39 | -0.0696 |
| | 0.3796 | 37 | -0.1014 | 6 | 0.0354 | 40 | -0.0656 |
| 7 8 | 0.3083 | | -0.1653 | 7 | 0.0487 | 41 | -0.0689 |
| | 0.1805 | 39 | -0.2076 | 8 | 0.0621 | 42 | -0.076 |
| 9 | 0.1510 | 40 | -0.2464 | 9 | 0.0756 | 43 | -0.082 |
| 10 | 0.1131 | 41 | -0.2829 | 10 | 0.0855 | 44 | -0.0758 |
| 11 | 0.1136 | 42 | -0.3151 | 11 | 0.0985 | 45 | -0.0674 |
| 12 | 0.0707 | 43 | -0.3489 | 12 | 0.0878 | 46 | -0.0729 |
| 13 | 0.0477 | 44 | -0.3962 | 13 | 0.0949 | 47 | -0.0668 |
| 14 | 0.0296 | 45 | -0.4287 | 14 | 0.0903 | 48 | -0.0667 |
| 15 | 0.0318 | 46 | -0.4845 | 15 | 0.0929 | 49 | -0.0764 |
| 16 | 0.0281 | 47 | -0.5242 | 16 | 0.1187 | 50 | -0.0740 |
| 17 | 0.0195 | | -0.6176 | 17 | 0.0949 | 51 | -0.0684 |
| 18 | 0.0131 | 49 | -0.6791 | 18 | 0.0964 | 52 | -0.0690 |
| 19 | 0.0169 | 50 | -0.7379 | 19 | 0.0984 | 53 | -0.0667 |
| 50 | 0.0137 | 51 | -0.7978 | 20 | 0.0943 | 54 | -0.0634 |
| 51 | 0.0164 | 52 | -0.8611 | 21 | 0.0969 | 55 | -0.0611 |
| 55 | 0.0153 | 53 | -0.9362 | 22 | 0.0866 | 56 | -0.0571 |
| 23 | 0.0234 | 54 | -1.0015 | 23 | 0.0928 | 57 | -0.0504 |
| 24 | 0.0288 | 55 | -1.0684 | 24 | 0.0853 | 58 | -0.0442 |
| 25 | 0.0293 | 56 | -1.1154 | 25 | 0.0830 | 59 | -().0436 |
| 26 | 0.0395 | 57 | -1.1928 | 26 | 0.0825 | 60 | -0.0307 |
| 27 | 0.0395 | 58 | -1.2805 | 27 | 0.0698 | 61 | -0.0222 |
| 58 | 0.0572 | 59 | -1.3293 | 28 | 0.0643 | 62 | -0.0137 |
| 29 | 0.0706 | 60 | -1.4941 | 29 | 0.0465 | 63 | -0.0036 |
| 30 | 0.0979 | 61 | -1.5717 | 30 | 0.0356 | 64 | 0.0048 |
| 31 | 0.1054 | 62 | -1.6000 | 31 | 0.0292 | 65 | 0.0021 |
| | | 63 | -1.6727 | 32 | 0.0075 | 66 | 0.0139 |
| | - | 64 | -2.3213 | 33 | 0.0267 | 67 | 0.0082 |
| | | 65 | -3.0205 | 34 | 0.1284 | 68 | -0.0132 |
| | | 66 | -3.2976 | | | | |

TABLE 1.4 PRESSURE DISTRIBUTIONS (CON'D)

| | MOD | EL | | | WΛ | LLS | |
|-----|---------|----------|---------|----|---------|-----|---------|
| N° | CP | N° | CP | No | CP | No | CP |
| 1 | 1.1395 | 32 | 0.1832 | 1 | 0.0443 | 35 | 0.078€ |
| 2 | 0.1960 | 33 | 0.0859 | 2 | 0.0325 | 36 | -0.0088 |
| 3 4 | -0.0246 | 34 | 0.0435 | 3 | 0.0165 | 37 | -0.0148 |
| | -0.2767 | 35 | 0.0095 | 4 | 0.0167 | 38 | -0.0164 |
| 5 | -0.3196 | 36 | -0.0264 | 5 | 0.0217 | 39 | -0.0206 |
| 6 | -0.4329 | 37 | -0.0594 | 6 | 0.0238 | 40 | -0.0201 |
| 7 | -0.4621 | 38 | -0.1091 | 7 | 0.0257 | 41 | -0.0249 |
| | -0.5178 | 39 | -0.1464 | 8 | 0.0348 | 42 | -0.0308 |
| 9 | -0.5361 | 40 | -0.1745 | 9 | 0.0330 | 43 | -0.0412 |
| 10 | | 41 | -0.1996 | 10 | 0.0412 | 44 | -0.0348 |
| 11 | | 42 | -0.2240 | 11 | 0.0332 | 45 | -0.0317 |
| 12 | -0.4696 | 43 | -0.2445 | 12 | 0.0159 | 46 | -0.0342 |
| 13 | -0.4097 | 44 | -0.2793 | 13 | 0.0199 | 47 | -0.0355 |
| 14 | | 45 | -0.3060 | 14 | 0.0113 | 48 | -0.0348 |
| 15 | | 46 | -0.3499 | 15 | 0.0053 | 49 | -0.0333 |
| 16 | -0.2948 | 47 | -0.3741 | 16 | 0.0314 | 50 | -0.0330 |
| 17 | | 48 | -0.4087 | 17 | -0.0018 | 51 | -0.0265 |
| 18 | -0.2677 | 49 | -0.4346 | 18 | -0.0016 | 52 | -0.0234 |
| 19 | -0.2455 | 50 | -0.4017 | 19 | -0.0025 | 53 | -0.0216 |
| 20 | -0.2019 | 51 | -0.6393 | 20 | -0.0039 | 54 | -0.0183 |
| 21 | -0.1716 | 52 | -0.8390 | 21 | 8000.0- | 55 | -0.0146 |
| 55 | -0.1562 | 53 | -0.9035 | 55 | -0.0162 | 56 | -0.0109 |
| 23 | -0.1046 | 54 | -0.9191 | 23 | -0.0064 | 57 | -0.0015 |
| 24 | -0.0799 | 55 | -0.9171 | 24 | -0.0087 | 58 | 0.0035 |
| 25 | -0.0595 | 56 | -0.9128 | 25 | -0.0060 | 59 | 0.0053 |
| 26 | -0.0278 | 57 | -0.8939 | 26 | -0.0006 | 60 | 0.0154 |
| 27 | -0.0052 | 58 | -0.8551 | 27 | 0.0017 | 61 | 0.0184 |
| 58 | 0.0338 | 59 | -0.8179 | 58 | 0.0022 | 62 | 0.0226 |
| 29 | 0.0657 | 60 | -0.7626 | 59 | 0.0052 | 63 | 0.0266 |
| 30 | 0.1078 | 61 | -0.7269 | 30 | 0.0028 | 64 | 0.0175 |
| 31 | 0.1531 | 65 | -0.6928 | 31 | 0.0065 | 65 | 0.0117 |
| | | 63 64 | -0.6799 | 32 | 0.0064 | 66 | 0.0196 |
| | | 64 | -0.5366 | 33 | 0.0162 | 67 | 0.0116 |
| | | 65 66 | -0.3911 | 34 | 0.1439 | 68 | -0.0045 |
| | | 66 | -0,1927 | | | | |

| | MACH = | 0,7 | | | RE = 3. | 38 · x | : 106 |
|--|--|--|---|--|--|--|--|
| 1 | ALFHA = | ODEL | | _ | | ALLS | |
| No | CP | No | CP | Ne | CP | N° | CP |
| 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | CP 1.1140 0.3405 0.1395 -0.1273 -0.2961 -0.3245 -0.3926 -0.4059 -0.4050 -0.3926 -0.3793 -0.3212 -0.3660 -0.3381 -0.2380 -0.2388 -0.2388 | N° 2333555678994145445647849 | 0.1835 0.0901 0.0461 0.0107 -0.0257 -0.1070 -0.1432 -0.1964 -0.2216 -0.2430 -0.2920 -0.3248 -0.3302 -0.3202 -0.2820 -0.28300 -0.28300 | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | | N° 35 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 | |
| 19 20 21 22 23 24 25 26 27 28 29 30 31 | -0.2031 -0.1671 -0.1375 -0.1312 -0.0834 -0.0625 -0.0436 -0.0149 0.0052 0.0448 0.0718 0.1128 | 50 51 52 53 54 55 56 57 58 59 61 62 63 64 66 | -0.9996 -1.0231 -1.0762 -1.0830 -1.0762 -1.0743 -1.0362 -0.9945 -0.9950 -0.9078 -0.8842 -0.8617 -0.8504 -0.5767 | 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 | 0.0170 0.0130 0.0170 0.0043 0.0147 0.0107 0.0132 0.0161 0.0189 0.0174 0.0131 0.0108 0.0175 0.0175 0.0175 | 53 54 55 55 57 55 57 55 56 66 66 66 66 66 66 66 66 66 66 66 | -0.0324 -0.0278 -0.0241 -0.0214 -0.0104 -0.0052 -0.0022 0.0116 0.0174 0.0222 0.0277 0.0182 0.0214 0.0214 0.0222 -0.0070 |

| | ALPHA = MODE | | | | WA | LLS | |
|-------|--------------|----|--------------------|----------|---------|----------|---------|
| N° | CP | N° | CP | N° | CP . | N° | CP |
| 1 | 1.0651 | 32 | 0.1891 | 1 | 0.0450 | 35 | 0.0462 |
| 2 | 0.4850 | 33 | 0.0952 | 2 | 0.0331 | 36 | -0.0247 |
| 2 3 4 | 0.2767 | 34 | 0.0555 | 3 | 0.0186 | 37 | -0.0320 |
| 4 | 0.0237 | 35 | 0.0165 | | 0.0260 | 38 | -0.0345 |
| 5 | -0.0325 | 36 | -0.0130 | 5 | 0.0326 | 39 | -0.0381 |
| 6 | -0.1491 | 37 | -0.0449 | 6 | 0.0373 | 40 | -0.0387 |
| 7 8 | -0.1849 | 38 | -0.0921 | 7 | 0.0431 | 41 | -0.0440 |
| | -0.2631 | 39 | -0.1263 | 8 | 0.0558 | 42 | -0.0508 |
| 9 | -0,2850 | 40 | -0.1515 | 9 | 0.0596 | 43 | -0.0599 |
| 10 | -0.2878 | 41 | -0.1731 | 10 | 0.0745 | 44 | -0.0571 |
| 11 | -0.2817 | 42 | -0.1915 | 11 | 0.0709 | 45 | -0.0559 |
| 12 | -0.2770 | 43 | -0.2017 | 12 | 0.0538 | 46 | -0.0567 |
| 13 | -0.2356 | 44 | -0.2226 | 13 | 0.0594 | 47 | -0.0630 |
| 14 | -0.2846 | 45 | -0.2275 | 14 | 0.0533 | 48 | -0.0621 |
| 15 | -0.2609 | 46 | -0.2506 | 15 | 0.0507 | 49 | 0.0614 |
| 16 | -0.2154 | 47 | -0.2664 | 16 | 0.0719 | 50 | -0.0611 |
| 17 | -0.2122 | 48 | -0.9516 | 17 | 0.0441 | 51 | -0.0553 |
| 18 | -0.1730 | 49 | -1.1655 | 18 | 0.0454 | 52 | -0.051 |
| 19 | -0.1475 | 50 | -1.1899 | 19 | 0.0435 | 53 | -0.0480 |
| 20 | -0.1263 | 51 | -1.2258 | 20 | 0.0400 | 54 | -0.0404 |
| 21 | -0.1010 | 52 | -1.2294 | 21 | 0.0428 | 55 | -0.0354 |
| 22 | -0.0968 | 53 | -1.2278 | 55 | 0.0309 | 56 | -0.0300 |
| 23 | -0.0607 | 54 | -1.2165 | 23 | 0.0393 | 57 | -0.0178 |
| 24 | -0.0378 | 55 | -1.2062 | 24 | 0.0341 | 58 | -0.0101 |
| 25 | -0.0279 | 56 | -1.1968 | 25 | 0.0364 | 59 | -0.0061 |
| 26 | 0.0053 | 57 | -1.1653 | 26 | 0.0394 | 60 | 0.0095 |
| 27 | 0.0213 | 58 | -1.1219 | 27 | 0.0381 | 61 | 0.0177 |
| 28 | 0.0573 | 59 | -1.0815 | 58 | 0.0338 | 60 | 0.0244 |
| 29 | 0.0828 | 60 | -1.0351 | 29 | 0.0263 | 63 | 0.0296 |
| 30 | 0.1206 | 61 | -1.0190 | 30 | 0.0217 | 64 | 0.0244 |
| 31 | 0.1606 | 62 | -0.9991 | 31 | 0.0150 | 65 | 0.0201 |
| | | 63 | -0.9892 | 32 | -0.0019 | 66 | 0.0256 |
| | | 65 | -0.8561 | 33 34 | 0.0216 | 67 6B | 0.0122 |
| | | 66 | -0.7626 -0.5507 | 24 | 0.1560 | (a) | 0.0064 |
| | | 00 | -0.5507 | | | | |

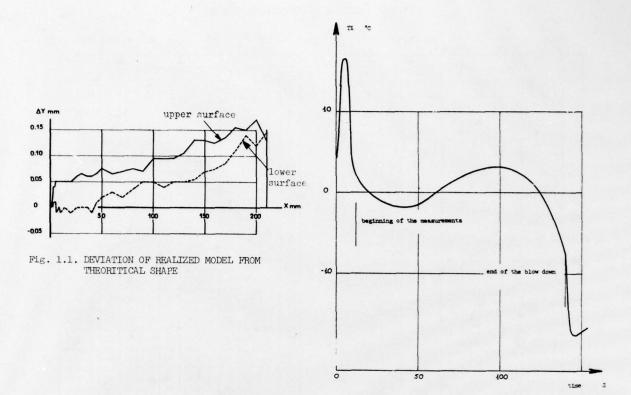


Fig. 1.2 EVOLUTION OF THE STAGNATION TEMPERATURE DURING A BLOW DOWN

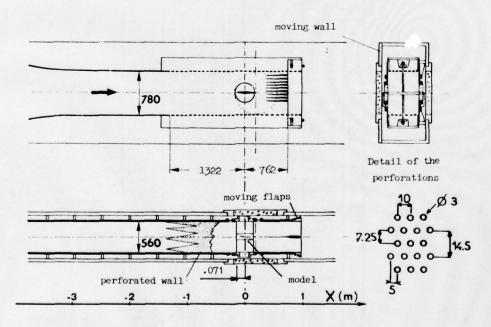


Fig. 1.3 MODEL INSTALLATION IN THE S3MA TRANSONIC WIND TUNNEL

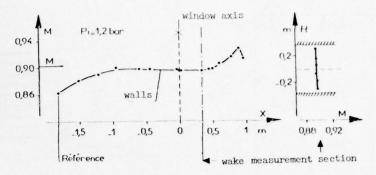


Fig. 1.4a Mach number distribution in the wind tunnel

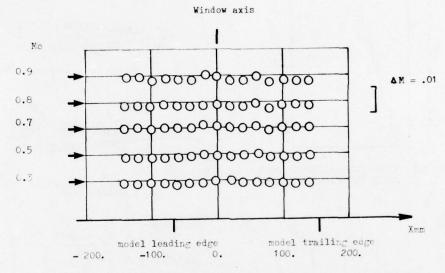


Fig. 1.4b Mach number distributions in the model region Fig. 1.4 S3MA TUNNEL EMPTY TEST SECTION CALIBRATION DATA

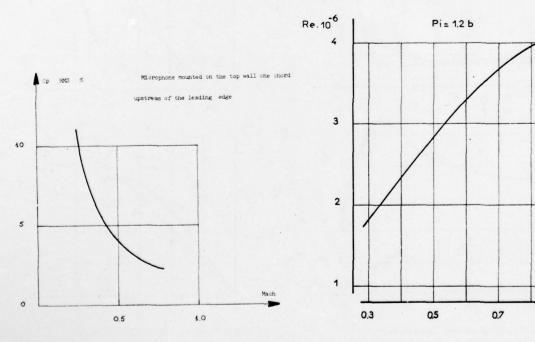


Fig. 1.5 NOISE LEVEL

Fig. 1.6 REYNOLDS NUMBER BASED ON CHORD LENGTH

Mo

0,9

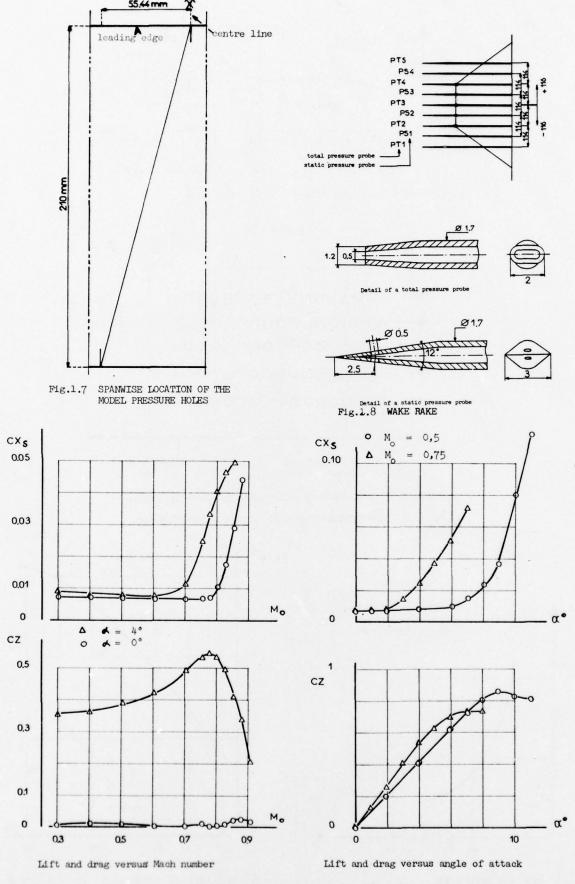


FIG.1.9 EVOLUTIONS OF THE AERODYNAMIC COEFFICIENTS

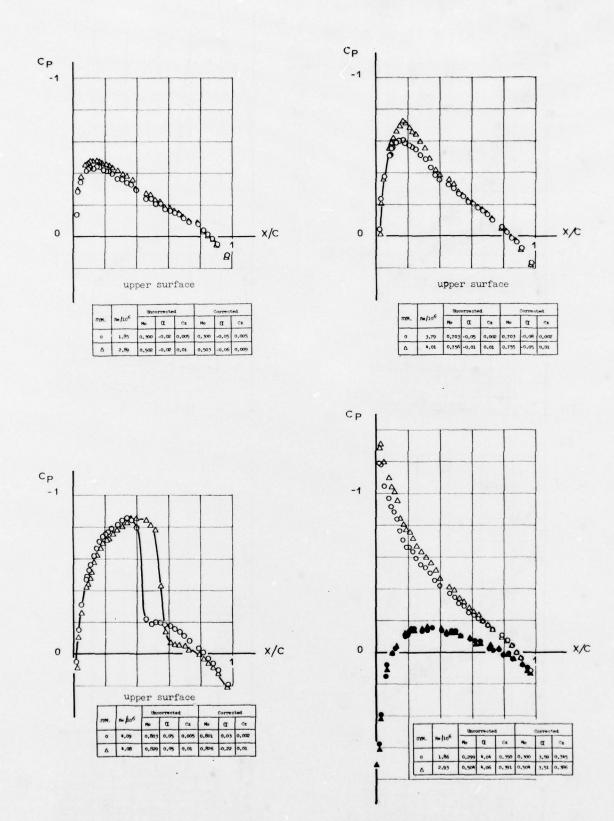


FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS

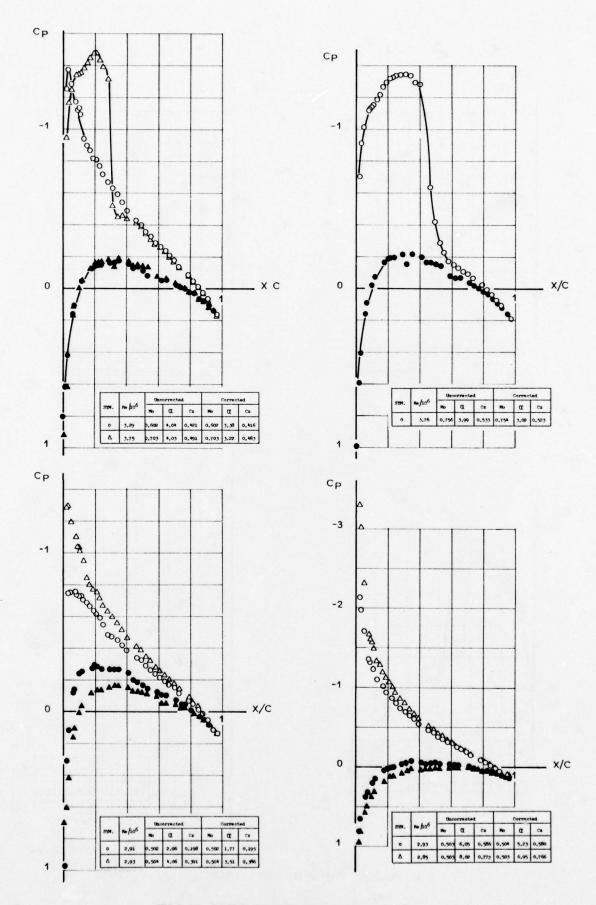
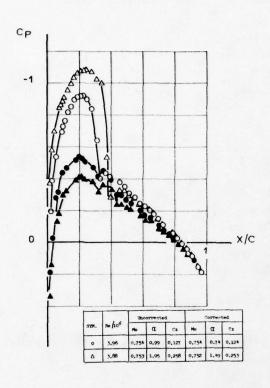


FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS (CON'D)



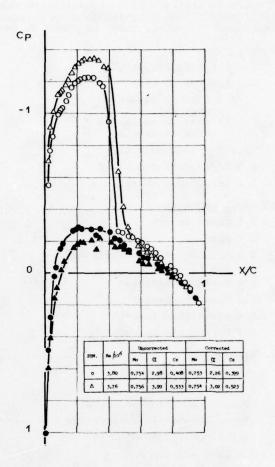


FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS (CON'D)

These data are extracted from a larger body of data obtained in a collaborative program with ONERA. The selected data is primarily aimed at providing high Reynolds number experimental results under as close to interference free conditions as possible.

1. Airfoil

| 1.1 Airfoil designation | NACA 0012 |
|--|---|
| 1.2 Type of airfoil | symmetrical |
| 1.2.1 airfoil geometry nose radius maximum thickness base thickness | Figure 1.11 r/c = 1.58% t/c = 12% 0.252% chord |
| 1.2.2 design condition | |

1.3 Additional remarks 1.4 References on airfoil

2. Model geometry

| 2.1 | Chord | length | |
|-----|-------|--------|--|
| 2.2 | Span | | |

2.3 Actual model co-ordinates

and accuracy 2.4 Maximum thickness

2.5 Base thickness 2.6 Additional remarks

2.7 References on model

3. Wind tunnel

3.1 Designation

3.2 Type of tunnel

3.2.1 stagnation pressure

3.2.2 stagnation temperature

3.2.3 humidity/dew point

3.3 Test section

3.3.1 dimensions

3.3.2 type of walls

3.4 Flow field (empty test section)

3.4.1 reference static pressure

3.4.2 flow angularity

3.4.3 Mach number distribution

3.4.4 pressure gradient

3.4.5 turbulence/noise level

3.4.6 side wall boundary layer

3.5 Additional remarks

3.6 References on wind tunnel

4. Tests

4.1 Type of measurements

4.2 Tunnel/model dimensions 4.2.1 height/chord ratio

4.2.3 width/chord ratio

0.300 m

None 1

0.381 m

Table 1.5

t/c = 12%

0.252% chord

None

NAE 5-ft x 5-ft trisonic W/T with 2-D insert

Blowdown

2-11 bars

293 K, max drop ~5K during a run

 $0.0002 \text{ kg H}_2\text{O/Kg air}$

Rectangular, Fig. 1.12

0.38m x 1.52m

Perforated top and bottom

20.5% porosity \$\phi\$ 12.7 mm normal holes at 26.4 mm spacing

at sidewall 6.48 chord upstream of model LE

-not determined

Fig.1.13

Fig.1.13

 $\frac{1}{q}$ rms = 0.008 at $M_{\infty} = 0.8$ free stream δ* ≤ 2.5 mm

 $\frac{2\delta *}{B} \le 0.013$

sidewall suction over an area

1.8 x 2.4 chord around model

3, 4

force balance surface pressure wake pitot pressure

5/1

1.27/1

| | A1-21 |
|---|---|
| 4.3 Flow conditions included in present data base | |
| 4.3.1 angle of attack | nominally 0° |
| 4.3.2 Mach number | 0.5 - 0.93 see Table 1.6 |
| 4.3.3 Reynolds number | 17 to 43 x 106 |
| 4.3.4 transition | free transition |
| -position of free transition | not established |
| -transition fixing | |
| 4.3.5 temperature equilibrium | yes |
| 4.4 Additional remarks | |
| 4.5 References on tests | 2 |
| . <u>Instrumentation</u> | |
| 5.1 Surface pressure measurements | |
| 5.1.1 pressure holes | 80 |
| -size | ф 0.40 mm |
| -spanwise station(s) | centre span in a line 15° to flow direction |
| -chordwise positions | see Table 1.5 |
| 5.1.2 type of transducers and scanning devices | Two D9 scanivalves with 200 psia Kulite VQS-500-200A |
| 5,1.3 other | scan rate for 5.1.2 20 ports/sec. |
| 5.2 Wake measurements | |
| 5.2.1 type/size of instrument(s) | Traversing probe, see Fig.1.12 OD/ID = 2.286/1,524 mm |
| 5.2.2 streamwise position(s) | 1.27 x chord downstream of TE |
| 5.2.3 type of transducers and scanning devices | 50 psid Statham PM 131 TC |
| 5.3 Boundary layer measurements | |
| 5.3.1 type/size of instruments | |
| 5.3.2 locations | |
| 5.3.3 type of transducers and scanning devices | |
| 5.4 Skin friction measurements | |
| | |
| 5.4.1 type/size of instruments . 5.4.3 type of transducer | |
| 5.5 Flow visualisation | |
| 5.5.1 flow field | |
| 5.5.2 surface flow | at $\alpha_{g} = 5^{\circ}$ $M_{\infty} = 0.76$ Re = 24x10 ⁶ and |
| | different sidewall suction (Data not included in Data Base) |
| 5.6 other | |
| 5.7 Additional remarks | two three-component balances for force measurements |
| 5.8 References on instrumentation | 2, 4 |

6. Data

6.1 Accuracy (wall interference excluded)

6.1.1 angle of attack setting ± 0.02°

6. M. Mokry et al

| 6.1.2 free stream Mach number: | |
|--|---|
| - setting | ±0.003 |
| variation during one pressure scan | ±0.003 |
| 6.1.3 pressure coefficients | $\Delta C_{\rm p} \le \frac{0.017}{0.004} \left(\frac{\rm q}{\rm q} = \frac{12}{50} \right) + 0.007 \left C_{\rm p} \right $ |
| 6.1.4 aerodynamic coefficients | p (q = 30) |
| 6.1.5 boundary layer quantities | |
| 6.1.6 repeatability | Generally $\Delta C_{N_{ m P}}$ ±0.005 $\Delta C_{X_{ m P}}$ ±0.0005 $\Delta C_{M_{ m P}}$ ±0.0005 |
| | $\Delta C_{N_{P}}$ ± 0.005 $\Delta C_{X_{P}}$ ± 0.0005 $\Delta C_{M_{P}}$ ± 0.0005 $\Delta C_{N_{B}}$ ± 0.0005 $\Delta C_{N_{B}}$ ± 0.0005 $\Delta C_{N_{B}}$ ± 0.0005 $\Delta C_{N_{B}}$ |
| 6.1.7 remarks | 20DM 2010013 |
| 6.2 Wall interference corrections (indicate estimated accuracy) | No corrections |
| 6.2.5 remarks | since supplied data are for nearly zero lift all wall corrections can be considered negligible. |
| 6.2.6 references on wall interference correction | 5, 6 |
| 6.3 Presentation of data | |
| 6.3.1 aerodynamic coefficients | Table 1.6 |
| 6.3.2 surface pressures | Table 1.7 - 1.15, Figure 1.14 - 1.22 |
| 6.3.3 boundary layer quantities | |
| 6.3.4 wall interference corrections included ? | No |
| 6.3.5 corrections for model deflection | No |
| 6.3.6 empty test section calibration taken into account ? | Yes |
| 6.3.7 other corrections included ? | No |
| 6.3.8 additional remarks | Wake drag data are those obtained from probe on c only. |
| .4 Were tests carried out in different facilities on the current airfoil ? If so, what facilities. Are data included in the present data base ? | Yes, in ONERA S3 wind tunnel. |
| .5 To be contacted for further information on tests. | L.H. Ohman - High Speed Aerodynamics Laboratory NAE/NRC Ottawa, Ontario, Canada. |
| References | |
| 1. I.H. Abbott / A.E. von Doenhoff | Theory of wing sections. Dover Publications Inc., New York |
| 2. R.C. Dixon | High Reynolds Number Investigation of an ONERA model of the NACA 0012 Airfoil Section NRC/NAE LTR-HA-5x5/0069 1975 |
| 3. L.H. Ohman et al | The NAE High Reynolds Number 15in x 16in two-dimenstional test facility NRC/NAE LTR-HA-4 April, 1970 |
| 4. L.H. Ohman | The NAE 15in x 60in two-dimenstional test facility: new features and some related observations, results of new centre line calibration at 20.5% porosity NRC/NAE LTR-HA-15 March, 1973 |
| 5. D.J. Peake / A.J. Bowker | A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel. NRC/NAE LTR-HA-11 January, 1973 |
| | W-11 (-1-6-11- |

Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine

the porosity factors for tunnel floor and ceiling.
NRC/NAE LR-575 February, 1974

8. List of symbols

В tunnel width = model span C model chord H tunnel height M, MLOC local Mach number M ,MTUN free stream Mach number P local static pressure P.PS free stream static pressure PO free stream total pressure Reynolds number based on model chord Q, P free stream dynamic pressure V/U relative sidewall suction velocity <u>L</u> sidewall free stream velocity P-P pressure coefficient Cp,CP CN,CN normal force coefficient chord force coefficient C_{X} ,CXC_M,CMC4 pitching moment coefficient, about 1/4 chord wake drag coefficient C_{DW} Х streamwise coordinate model origin: LE W/T origin: balance $\mathfrak{L} = 0.364 \mod 2 \text{ M/C}$ geometric angle of attack, angle between chordline and tunnel ${\mathfrak L}$ α_g subscript P refers to pressure data В balance data d design data model data m lower surface L U upper surface

Table 1.5 Model Geometry and Pressure Hole Locations

| Pressure Hole | (x/c) m | (Y/C) | (Y/C) a | (Y/C) - (Y/C) d |
|------------------|--------------------|----------------------|----------------------|----------------------|
| 42U 40U | 0.97000 0.90920 | 0.00510 0.01300 | 0.00539 0.01333 | -0.00029 -0.00033 |
| 38U 37U | 0.84930 0.81940 | 0.02030 0.02380 | 0.02061 0.02406 | -0.00031 |
| 360 | 0.78960 | 0.02710 | 0.02738 | -0.00026 -0.00028 |
| 35U | 0.75950 | 0.03040 | 0.03061 | -0.00021 |
| 34U 33U | 0.72950 0.69960 | 0.03350 0.03650 | 0.03371 0.03668 | -0.00021 -0.00018 |
| 320 | 0.66930 | 0.03940 | 0.03956 | -0.00016 |
| 310 | 0.63950 | 0.04210 | 0.04226 | -0.00016 |
| 30U 29U | 0.60960 0.58390 | 0.04470 0.04680 | 0.04484 | -0.00014 -0.00013 |
| 280 | 0.54960 | 0.04940 | 0.04955 | -0.00015 |
| 270 | 0.51990 | 0.05160 | 0.05164 | -0.00004 |
| 26U 25U | 0.48920 0.45910 | 0.05360 0.05530 | 0.05361 0.05533 | -0.00001 -0.00003 |
| 24 U | 0.42960 | 0.05670 | 0.05680 | -0.00010 |
| 23U | 0.39900 | 0.05800 | 0.05807 | -0.00007 |
| 22U 21U | 0.36960 0.33880 | 0.05890 0.05960 | 0.05902 0.05969 | -0.00012 -0.00009 |
| 2 0 U | 0.30910 | 0.06000 | 0.06000 | 0.00000 |
| 19U 18U | 0.27930 0.24940 | 0.06000 0.05950 | 0.05992 0.05940 | 0.00008 |
| 170 | 0.22940 | 0.05880 | 0.05877 | 0.00003 |
| 16U | 0.20930 | 0.05800 | 0.05788 | 0.00012 |
| 15U 14U | 0.18930 0.16880 | 0.05680 0.05530 | 0.05671 0.05519 | 0.00009 0.00011 |
| 130 | 0.14950 | 0.05350 | 0.05340 | 0.00010 |
| 120 | 0.12950 | 0.05140 | 0.05113 | 0.00027 |
| 11U | 0.10940 0.09920 | 0.04860 | 0.04834 0.04669 | 0.00026 0.00031 |
| 90 | 0.08950 | 0.04530 | 0.04496 | 0.00034 |
| 8U | 0.07900 0.06960 | 0.04320 | 0.04286 | 0.00034 |
| 7U 6U | 0.05960 | 0.03860 | 0.04077 0.03827 | 0.00033 0.00033 |
| 50 | 0.04960 | 0.03580 | 0.03543 | 0.00037 |
| 4U 3U | 0.03990 0.02930 | 0.03260 0.02850 | 0.03224 0.02810 | 0.00036 0.00040 |
| 20 | 0.01920 | 0.02360 | 0.02316 | 0.00044 |
| 10 | 0.00880 | 0.01660 | 0.01603 | 0.00057 |
| OLE 1L | 0.00000 0.00940 | 0.00000 -0.01680 | 0.00000 -0.01654 | 0.00000 -0.00026 |
| 2L | 0.01940 | -0.02340 | -0.02327 | -0.00013 |
| 3L 4L | 0.02970 0.03950 | -0.02840 -0.03210 | -0.02827 -0.03210 | -0.00013 -0.00000 |
| 5L | 0.04980 | -0.03550 | -0.03549 | -0.00001 |
| 6L | 0.05920 | -0.03820 | -0.03816 | -0.00004 |
| 7L 8L | 0.07000 0.07910 | -0.04090 -0.04270 | -0.04086 -0.04288 | -0.00004 0.00018 |
| 9L | 0.08950 | -0.04500 | -0.04496 | -0.00004 |
| 10L 11L | 0.09960 0.11980 | -0.04680 -0.04990 | -0.04676 -0.04985 | -0.00004 -0.00005 |
| 12L | 0.13980 | -0.05230 | -0.05236 | 0.00006 |
| 13L | 0.15980 | -0.05430 | -0.05440 | 0.00010 |
| 14L 15L | 0.17940 0.19960 | -0.05600 -0.05730 | -0.05602 -0.05735 | 0.00002 0.00005 |
| 16L | 0.21960 | -0.05830 | -0.05837 | 0.00007 |
| 17L 18L | 0.23990 0.25950 | -0.05910 -0.05960 | -0.05913 -0.05963 | 0.00003 0.00003 |
| 19L | 0.28950 | -0.06000 | -0.05999 | -0.00001 |
| 2øL | 0.31930 | -0.06000 | -0.05993 | -0.00007 |
| 21L 22L | 0.34960 0.37960 | -0.05960 -0.05880 | -0.05949 -0.05872 | -0.00011 -0.00008 |
| 23L | 0.40980 | -0.05770 | -0.05765 | -0.00005 |
| 24L 25L | 0.43940 0.46980 | -0.05640 -0.05480 | -0.05634 -0.05474 | -0.00006 -0.00006 |
| 26L | 0.49960 | -0.05300 | -0.05297 | -0.00003 |
| 27L | 0.52990 | -0.05110 | -0.05096 | -0.00014 |
| 28L 29L | 0.55990 0.59010 | -0.04890 -0.04650 | -0.04879 -0.04644 | -0.00011 -0.00006 |
| 30L | 0.61940 | -0.04410 | -0.04401 | -0.00009 |
| 31L 34L | 0.64980 0.73920 | -0.04150 -0.03290 | -0.04134 -0.03272 | -0.00016 -0.00018 |
| 35L | 0.76960 | -0.02970 | -0.02954 | -0.00016 |
| 36L | 0.79980 | -0.02650 | -0.02625 | -0.00025 |
| 37L 38L | 0.82950 0.86020 | -0.02310 -0.01960 | -0.02291 -0.01932 | -0.00019 -0.00028 |
| 39L | 0.88970 | -0.01610 | -0.01575 | -0.20035 |
| 40L 41L | 0.91980 0.94980 | -0.01240 -0.00850 | -0.01198 -0.00809 | -0.00042 -0.00041 |
| 410 | 0. 94900 | -0.00000 | 0.0000 | -0,00041 |

TABLE 1.6

AERODYNAMICS COEFFICIENTS

| | | | Re | | 1 | PRESSURE | | 1 | BALANCE | | | | |
|--------|------|--------------------------------|------|------------------|-------------------------------------|-------------------------------------|-----------------|-----------------|--|-----------------|--------|------|-----|
| TABLE | FIG | $\mathrm{M}_{\mathrm{\infty}}$ | 10-6 | α _g ° | $^{\text{C}}_{\text{N}_{\text{P}}}$ | $^{\text{C}}_{\text{X}_{\text{P}}}$ | C _{Mp} | c _{NB} | $^{\mathrm{C}}\mathrm{x}_{\mathrm{B}}$ | C _{MB} | - D | | NO. |
| 1.7 | 1.14 | 0.490 | 17.5 | -0.12 | -0.020 | 0.0011 | 0.001 | -0.019 | 0.0031 | 0.002 | 0.0081 | 2777 | 2 |
| 1.8 1 | 1.15 | 0.693 | 22.2 | -0.13 | -0.017 | 0.0033 | -0.002 | -0.020 | 0,0075 | 0.00] | 0.0078 | 2763 | 3 2 |
| 1.9 | 1.16 | 0.696 | 36.7 | -0.13 | -0.025 | 0.0027 | -0.002 | -0.021 | 0.0074 | 0.001 | 0.0081 | 2767 | 1 |
| 1.10 1 | 1.17 | 0,776 | 23.7 | -0.13 | -0.017 | 0.0060 | -0.002 | -0.020 | 0.0101 | 0.000 | 0.0082 | 2788 | 1 |
| 1.11 1 | 1.18 | 0.814 | 24.7 | -0.13 | -0.020 | 0.0121 | -0.001 | -0.019 | 0.0168 | 0.000 | 0.0132 | 2753 | 2 |
| 1.12 1 | 1.19 | 0.817 | 32.3 | -0.13 | -0.009 | 0.0137 | -0.004 | -0.011 | 0.0179 | 0.000 | 0.0147 | 2801 | . 1 |
| 1.13 1 | .20 | 0.835 | 24.7 | -0.13 | -0.004 | 0.0198 | -0.003 | -0.007 | 0.0246 | -0.001 | 0.0198 | 2789 | 1 |
| 1.14 1 | 1.21 | 0.918 | 25.9 | -0.17 | 0.060 | 0.0678 | -0.038 | 0.007 | 0.0703 | -0.013 | 0.0603 | 2775 | 2 |
| 1.15 | .22 | 0.930 | 42.8 | -0.18 | 0.018 | 0.0764 | -0.023 | 0.002 | 0.0770 | -0.011 | 0.0610 | 2784 | 1 |

SCAN 2

TABLE 1.7
SURFACE PRESSURE MEASUREMENTS

| | RUN NUME | BER 2777 | | | ONERA 2D | TESTS | |
|---|---|--|---|--|---|--|--------|
| 0.490 | RE/F6 17.51 | 87.44 | 536 | .52 | 74.16 | 12.50 | 0.0073 |
| TUBE | x/c | CP | MLCC | P/P0 | P/PS | MTUN | |
| 1U 2U 3U 5U 5U 10U 11U 11U 11U 11U 11U 11U 11U 11U 11 | 0.088 0.01923 0.0299 0.04966 0.05996 0.05996 0.0599994 0.0699994 0.1299999 0.11498 0.129999 0.1168999 0.1168999 0.129999 0.1299999 0.1299999 0.13336999 0.2279999 0.5580999 | 0.194 -0.114 -0.239 -0.341 -0.345 -0.345 -0.450 -0.450 -0.468 -0.467 -0.477 -0.474 -0.450 -0.437 -0.475 -0. | 0993432192547C008127492828474855916382594454778890900000000000000000000000000000000 | 0.876 0.88101 0.8000 0.7883 0.7883 0.7883 0.7884 0.7884 0.7884 0.7884 0.7890 0.7892 0.7892 0.7892 0.7892 0.7892 0.7892 0.8807 0.8807 0.8812 | 1.9840336 0.994436 0.994436 0.994436 0.9949300 0.99922222222222222222222222222222222 | 0.4490 0.4490 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4491 0.4499 | |
| 0LE 1LL 3LLL 6LL 90L 112L 13145L 145L 157 190L 1222 245L 267 280L 290L 314L 201L 201L 201L 201L 201L 201L 201L 201 | 0.0094 0.0094 0.00994 0.00994 0.009998 0.0099998 0.0099999 0.0099999 0.0099999 0.009999 0.009999 0.009999 0.009999 0.009999 0.009999 0.009999 0.0099999999 | 1.063 0.1135 -0.1347 -0.3761 -0.394 -0.4394 -0.4439 -0.4522 -0.499 -0.5297 -0.499 -0.5297 -0.499 -0.5297 -0.491 -0.458 -0.4458 -0.4458 -0.4458 -0.452 -0.3368 -0.239 -0.229 -0.229 -0.229 -0.221 -0.229 -0.22 | 6024756219213298117375056709627430856995 0000000000000000000000000000000000 | 0.999 0.8650 0.8650 0.7683 0.7786 0.7777 0.7778 0.7777 0.7778 0.7778 0.7788 0.7788 0.7788 0.7788 0.7788 0.7788 0.7788 0.7788 0.7888 0.8888 0.8 | 1.175 1.018 0.978 0.978 0.9943 0.9943 0.9935 0.927 0.9924 0.9117 0.9117 0.9117 0.9120 0.924 0.9235 0.924 0.935 0.9663 0.9663 0.9663 0.9669 0.9663 0.9669 0.9988 0.9988 0.9988 | 0.44899 0.44899 0.44899 0.44899 0.44990 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 0.44991 | |

TABLE 1.8
SURFACE PRESSURE MEASUREMENTS

| | | RUN NUM | BER 2763 | | DNERA 2D TESTS | | | |
|-----------|---|--|---|--|--|---|---|--------|
| SCAN 2 | 0.693 | RE/E6 22.15 | 87.24 | 540. | 70 | 63.32 | 21.25 | 0.0027 |
| | TUBE | x/c | CP | MLCC | P/P0 | P/PS | MTUN | |
| | 1U 2U 3U 5U 6U 7U 8U 10U 11U 12U 13U 14U 15U 16U 17U 18U 20U 22U 22U 23U 24U 25U 26U 27U 28U 33U 33U 33U 33U 33C 33C 33C 33C 33C 33 | 0.0129966000000000000000000000000000000000 | 0.312 -0.0313 -0.173 -0.320 -0.419 -0.464 -0.508 -0.512 -0.562 -0.5562 -0.5562 -0.5563 -0.5388 -0.5158 -0.460 -0.428 -0.440 -0.334 -0.274 -0.235 -0.255 -0.255 -0.255 -0.255 -0.338 -0.334 -0.334 -0.274 -0.220 -0.174 -0.220 -0.174 -0.103 -0.175 -0.103 -0.175 -0.103 -0.175 -0.103 -0.175 -0.103 -0.175 -0.103 -0.175 -0.1 | 0.7737 70.81306 0.881306 0.88561 0.88561 0.88961 0.89901 0.89901 0.89901 0.8901 0.8901 0.8901 0.8901 0.8901 0.8773287 0.773287 0.773287 0.7759287 0.776989 | 0.719 0.647 0.6448 0.6613 0.6602 0.5990 0.55990 0.55990 0.55990 0.55990 0.6602 | 1.104 0.9903 0.8943 0.8941 0.8645 0.8829 0.819 0.8119 0.8119 0.8119 0.8143 0.8119 0.8143 0.88567 0.8702 0.8702 0.8702 0.9906 0.9907 0.9907 0.9907 0.9907 | 22334433234453234453234433443344334453234453234433443 | |
| | 0LE 1LL 23LL 45LL 90L 111L 120L 13LL 145L 16L 178L 190L 112 221L 221L 221L 221L 221L 221L 221 | 0.0094 0.0094 0.001997 0.001997 0.001997 0.001997 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 0.001999 | 1.1224 -0.077 -0.3353 -0.077 -0.33535 -0.5540 -0.5540 -0.5540 -0.5540 -0.5540 -0.5574 -0.5774 | 0.602655905269312570078886555568321892265559052693125700788854555683218922665644 | 0.764015 97.7664015 97.7664015 0.6659711 0.659711 0.555788793 0.556666667751 0.5666667751 0.5777777777777777777777777777777777777 | 1.378 1.974 0.9003 0.8856 0.88324 0.88780 0.78097 0.7808 0.78097 0.7808 0.8815 0.8815 0.88456 0.8856 0.8856 0.8815 0.8856 | 4 3 4 4 4 4 3 4 4 2 2 1 5 4 4 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | |

TABLE 1.9
SURFACE PRESSURE MEASUREMENTS

| | | RUN NUME | BER 2767 | | | DNEPA 2D | TESTS | |
|-----------|----------------|----------------------------|---------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------|
| SCAN 1 | 0.696 | RE/E6 36.70 | 146.00 | 545 | .97 | 105.62 | 35.82 | 0.0028 |
| | TUBE | X/C | CP | MLDC | P/P0 | P/PS | MTUN | |
| | | | | | | | | |
| | 10 20 30 | 0.0088 0.0192 0.0293 | 0.316 -0.049 -0.182 | 0.574 0.715 0.766 | 0.800 0.711 0.679 | 1.107 0.984 0.939 | 0.697 0.697 0.598 | |
| | 4U 5U | 0.0399 | -0.350 -0.331 | 0.828 | 0.638 | 0.883 | 0.697 | |
| | 6U 7U | 0.0596 | -0.430 -0.472 | 0.858 | 0.619 | 0.856 | 0.697 | |
| | 80 | 0.0790 | -0.523 | 0.895 | 0.595 | 0.823 | 0.698 | |
| | 100 | 0.0895 | -0.528 -0.556 | 0.905 | 0.588 | 0.813 | 0.697 | |
| | 11U 12U | 0.1094 | -0.570 -0.571 | 0.913 | 0.583 | 0.807 | 0.598 | |
| | 13U 14U | 0.1495 | -0.590 -0.553 | 0.918 | 0.580 | 0.802 | 0.697 | |
| | 150 | 0.1893 | -0.567 | 0.910 | 0.585 | 0.809 | 0.698 | |
| | 16U 17U | 0.2093 | -0.546 -0.523 | 0.901 | 0.591 | 0.816 0.824 | 0.697 | |
| | 18U 19U | 0.2494 | -0.528 -0.502 | 0.895 | 0.595 | 0.822 0.832 | 0.697 | |
| | 200 | 0.3091 | -0.474 | 0.874 | 0.609 | 0.841 | 0.696 | |
| | 21U 22U | 0.3388 | -0.445 -0.434 | 0.862 | 0.616 | 0.853 | 0.598 | |
| | 23U 24U | 0.3991 | -0.415 -0.380 | 0.855 | 0.621 | 0.860 0.872 | 0.699 | |
| | 25U 26U | 0.4592 | -0.366 -0.327 | 0.833 | 0.635 | 0.878 | 0.697 | |
| | 270 | 0.5199 | -0.294 | 0.809 | 0.650 | 0.901 | 0.599 | |
| | 28U 29U | 0.5497 0.5840 | -0.269 -0.251 | 0.799 | 0.657 | 0.916 | 0.698 | |
| | 30U 31U | 0.6097 | -0.220 | 0.777 | 0.671 | 0.927 | 0.695 | |
| | 32U 33U | 0.6693 | -0.180 -0.135 | 0.764 | 0.680 | 0.940 | 0.597 | |
| | 340 | 0.7296 | -0.123 | 0.740 | 0.695 | 0.959 | 0.594 | |
| | 35U 36U | 0.7596 | -0.104 -0.073 | 0.734 | 0.699 | 0.976 | 0.696 | |
| | 37U 38U | 0.8194 | -0.051 -0.019 | 0.714 | 0.712 | 0.983 | 0.695 | |
| | 40U 42U | 0.9093 | 0.055 | 0.676 | 0.737 | 1.018 | 0.597 | |
| | OLE | 0.0000 | 1.114 | 0.090 | 0.994 | 1.375 | 0.697 | |
| | 1 L 2 L | 0.0094 | 0.178 -0.115 | 0.530 | 0.766 | 1.060 | 0.599 | |
| | 3L 4L | 0.0297 | -0.341 -0.413 | 0.825 | 0.640 | 0.886 | 0.698 | |
| | 5L | 0.0498 | -0.468 | 0.873 | 0.609 | 0.842 | 0.697 | |
| | 6L 7L | 0.0592 | -0.533 -0.556 | 0.898 | 0.593 | 0.812 | 0.598 | |
| | 9L | 0.0791 | -0.577 -0.667 | 0.914 | 0.582 | 0.805 0.776 | 0.698 | |
| | 10L 11L | 0.0996 | -0.628 | 0.932 | 0.571 | 0.789 | 0.695 | |
| | 12L | 0.1398 | -0.611 | 0.925 | 0.575 | 0.795 | 0.595 | |
| | 13L 14L | 0.1598 | -0.624 -0.624 | 0.930 | 0.573 | 0.791 0.792 | 0.596 | |
| | 15L 16L | 0.1996 | -0.605 -0.577 | 0.922 | 0.577 | 0.797 | 0.695 | |
| | 17L 18L | 0.2399 | -0.569 -0.543 | 0.910 | 0.585 | C.809 0.818 | 0.697 | |
| | 19L | 0.2895 | -0.520 | 0.890 | 0.598 | 0.826 | 0.695 | |
| | 20L 21L | 0.3193 | -0.518 | 0.892 | 0.597 | 0.825 | 0.698 | |
| | 22L 23L | 0.4098 | -0.471 -0.439 | 0.874 | 0.608 | 0.841 | 0.697 | |
| | 24L 25L | 0.4394 | -0.394 | 0.844 | 0.627 | 0.858 | 0.697 | |
| | 26L | 0.4996 | -0.297 | 0.810 | 0.650 | 0.877 | 0.698 | |
| | 27L 28L | 0.5299 | -0.303 -0.275 | 0.810 | 0.649 | 0.899 | 0.697 | |
| | 29L 30L | 0.5902 | -0.248 | 0.791 | 0.562 | 0.917 | 0.698 | |
| | 31L | 0.6499 | -0.197 | 0.770 | 0.676 | 0.934 | 0.597 | |
| | 35L | 0.7393 | -0.082, | 0.727 | 0.701 | 0.970 | 0.698 | |
| | 36L 37L | 0.7998 | -0.066° | 0.721 | 0.707 | 0.978 | 0.697 | |
| | 38L 39L | 0.8607 | -3.006 | 0.698 | 0.722 | 0.998 | 0.696 | |
| | 40L | 0.9199 | 0.064 | 0.672 | 0.739 | 1.010 | 0.697 | |
| | 41L | 0.9499 | 0.117 | 0.652 | 0.752 | 1.039 | 0.597 | |

TABLE 1.10
SURFACE PRESSURE MEASUREMENTS

| | | RUN NU | MBEF 2788 | | | ONERA 2 | D TESTS | |
|-----------|--|--|---|--|---|---|--|-------|
| SCAN 1 | 0.776 | PE/E6 23.74 | 87. | P0 15 5 | 70 | 53.50 | 24.70 | 0.002 |
| | TUBE | x/c | CP | MLDC | P/20 | P/PS | MTUN | |
| | 1UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU | 0.00892 0.0293 0.0293 0.0293 0.0293 0.03996 0.05996 0.05996 0.07995 0.10995 0.12995 0. | 00.10.2984.11.99.4.4.1.29.8.4.1.1.3.3.2.2.2.3.1.3.1.3.1.3.1.3.1.3.1.3 | 0.78492446177004445810997621338688785666666944482077889999762133868878565666669444820774970444581111009981388688888865332976898788888888888888888977650677888999900000000000000000000000000000 | 244179270882244486933969405524320077030044401443 0994171556580 766555555555555555555556666667 07665555554444445555555555666666667 0766555554444445555555555566666667 0766555554444455555555555666666667 076655555444445555555555555566666667 0766555554444455555555555555555555555555 | 7058686810739590769987886812444533166057 1140988512789800000000000000000000000000000000000 | 0.7798 0.7778 0.7778 0.7776 0.7776 0.7778 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.77778 0.7777 0.77778 | |
| | 123 141 156 171 189 190 122 123 141 150 122 123 141 151 151 151 151 151 151 151 151 151 | 0.1398 0.1794 0.1794 0.1794 0.2196 0.2399 0.2596 0.3193 0.3193 0.3796 0.4098 0.4099 0.4699 0.55902 0.55902 0.6194 0.6499 0.7697 0.7697 0.8803 0.88298 0.88298 0.88298 0.9199 | -0.718-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | 1.078 1.11312 1.11312 1.11312 1.11312 1.11313 | 81699108701 0.44458444566889001671 0.44445668890011455567891 0.555555566891 0.55555566891 | 0.719 0.6684 0.6684 0.6677 0.66697 0.6671 0.8671 0.8813 0.8845 0.8845 0.8845 0.8846 0.991 0.991 0.991 1.0024 1.0039 | 0.778 0.7778 0.7777 0.7778 0.7778 0.7778 0.7778 0.7778 0.7778 0.7778 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 0.7777 | |

TABLE 1.11
SURFACE PRESSURE MEASUREMENTS

| | | RUN NUM | BER 2753 | | | ONERA 2D | TESTS | |
|-----------|--|---|---|--|--|--|---|--------|
| SCAN 2 | 0.814 | RE/E6 24.70 | 87.20 | 532 | T0 2.51 | PI 55.37 | 26.19 | 0.0025 |
| | TUBE | x/c | CP | MLOC | P/P0 | P/PS | MTUN | |
| | 12000000000000000000000000000000000000 | 0.0192399 0.0192399 0.02399 0.02399 0.05696 0.007995 0.007995 0.10995 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11498 0.11499 0.11499 0.11499 0.11499 0.11498 0.11499 | 0.484 -0.0568 -0.218 -0.3286 -0.4421 -0.5667 -0.6779 -0.6779 -0.6779 -0.77348 -0.7754 -0.8216 -0.8216 -0.8216 -0.8216 -0.8216 -0.22196 -0.22196 -0.1216 -0.1216 -0.12196 -0.12 | 0.6776 0.6776 0.6776 0.9916 0.9916 1.00257 11.0058 11. | 320 0.6734 0.65882 0.553134 0.5553134 0.5553134 0.44808 0.444319 0.44431 0.44431 0.44431 0.44431 0.44564 0.44564 0.555899 0.555899 0.555899 0.555899 0.666334 0.66575 | 11.09995226331228626130282771859963322266413028899912222663312286264347185996632222661522000000000000000000000000000000 | 15445444433443546666655433545664444466555 888888888888888888811515456644444665555 000888888888888888888888888888888 | |
| | 0 1123 45 67 8 90 1121 145 16 17 8 1 122 145 16 17 8 1 123 145 16 17 8 1 122 145 16 17 8 17 8 17 8 17 8 17 8 17 8 17 8 1 | 0.0000 0.0094 0.00994 0.0297 0.0398 0.0590 0.0590 0.0791 0.0996 0.1198 0.1199 | 1.34459345038910-0.4459314-0.4459314-0.4459314-0.4459314-0.4459314-0.458950-0.667223667-0.7667223667-0.883562995085289-0.884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.9884565885289950811658-0.98845658852889950811658-0.98845658852889950811658-0.98845658852889950811658-0.98845658852889950811658-0.98845658852889950811658-0.98845658852889950811658-0.9884565889950811658-0.98845658899508116588995081658899508165889950811658899508116588995081165889950811658899508116588995089950811658899508116588995081165889950811658899508116588995081165889950811658899508116588995081165889950811658899508116588995089950899508995089950899508995089 | 0.65483778191876000911.00997611.0111.1680218028917745 | 1.000000000000000000000000000000000000 | 1.5582 1.0920 1.0920 1.0920 1.0920 1.0920 1.0920 1.0920 1.0920 1.0920 1.0920 1.0920 1.0041 | 0.000000000000000000000000000000000000 | |

TABLE 1.12
SURFACE PRESSURE MEASUREMENTS

| | | RUN NUM | BER 2801 | | ONERA 2D TESTS | | | |
|-----------|---|--|--|---|---|--|--|--------|
| SCAN 1 | C.817 | RE/E6 32.26 | 116.63 | 549 | 70 | 75.23 | 35.15 | 0.0025 |
| | TUBE | x/c | CP | MLDC | D/30 | P/PS | MTUN | |
| | 100340000000000000000000000000000000000 | 0.0193996660099399966600000000000000000000 | 0.427 0.0951 -0.2197 -0.2197 -0.3385 -0.4399 -0.5598 -0.6685 -0.7317 -0.7599 -0.8390 -0.8390 -0.88295 -0.2084 -0.37536 -0.2084 -0.11678 -0.11678 -0.11678 -0.11678 -0.11678 -0.11678 -0.00372 -0.00372 -0.00390 -0.1188 | C.677627192231000994200000000000000000000000000000000 | 712905666666666666666666666666666666666666 | 1.199 1.0456 0.9718 0.9908 0.8205 0.7790 0.88205 0.77329 0.66529 0.66529 0.66137 0.66339 0.66157 0.68399 0.9914 0.9924 0.99510 0.9973 1.0387 | 0.820 0.820 0.820 0.83118 8.20 0.83118 8.20 0.83118 0.83118 0.83117 0.83117 0.83117 0.83117 0.83117 0.83117 0.83117 0.83119 0.8311 | |
| | 11234567890123455789011214111111111111111111111111111111111 | 0.00994 0.001994 0.001994 0.001997 0.001997 0.001997 0.001999 0.00199 | 10.0551 13.55 | 0.65992874165001175554886200499237920751911.11.15889620449923792999999444911.12.2222525452000.8844310.2222545452000.8844311.2222545452000.8844310.22254545492000.8844310.22254545492000.8844310.22254545492000.8844310.22254545492000.8844310.22254545492000.8844310.22254545492000.8844310.2225454549200000.8844310.2225454549200000000000000000000000000000 | 00203454465611801140124005148675855555544444444443333377585555666666666666666666666666666 | 1.1624 91911110000000000000000000000000000000 | 0.881219099144444880190983187788891219099838187788899000000000000000000000000000000 | |

TABLE 1.13
SURFACE PRESSURE MEASUREMENTS

TABLE 1.14
SURFACE PRESSURE MEASUREMENTS

| | | RUN NUM | BER 2775 | | ONERA 20 TESTS | | | |
|------|---|--|--|--|---|--|---|--------|
| SCAN | 0.918 | RE/E6 25.94 | 87.28 | 533 | T0 | 50.59 | 29.85 | 0.0025 |
| | TUBE | ×/c | CP | MLOC | P/P0 | P/25 | MTUN | |
| | 100 340 450 100 100 112 113 113 113 113 113 113 113 113 113 | 0.0088 0.0192 0.0293 0.0399 0.0496 0.0399 0.0496 0.0696 0.0896 0.1295 0.11498 0.1295 0.11498 0.1295 0.12493 0.1295 0.13993 0.2295 0.12493 0.2295 0.22493 0.2295 0.22493 0.2295 0.22493 0.2295 0.22493 0.2295 0.22493 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2295 0.2399 0.2399 0.2499 0.2599 0.2699 | 0.554 0.249 0.125 -0.035 -0.127 -0.181 -0.243 -0.303 -0.395 -0.457 -0.511 -0.551 -0.551 -0.551 -0.659 -0.669 -0.6671 -0.673 -0.658 -0.659 -0.696 -0.715 -0.715 -0.257 -0.059 | 0.6790 0.6790 0.9357 1.005688 1.00568 1.00568 1.00568 1.00568 1.00568 1.00568 1.005 | 7662119787584764760566555938765211849776621197766556448764767575938765559387657593876593876557593876557593876557593876557593876575759387655759387657575938765757593876575759387657575938765757576767676767676767676767676767676 | 1.109982470287632325911000998544700000000000000000000000000000000000 | 0.921 0.9218 0.9218 0.9116 0.9118 0.9118 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9117 0.9119 0.9117 0.9119 0.9117 0.9119 0.9117 0.9119 0.9117 0.9119 | |
| | 0 11234567890145LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL | 0.0094 0.00994 0.00994 0.00995 0.003995 0.0059000 0.005900 0.005900 0.005900 0.005900 0.005900 0.005900 0.0059000 0.005900 0.005900 0.005900 0.005900 0.005900 0.005900 0.0059 | 1.0.233497 -0.0.017151 -0.0.017151 -0.0.233497 -0.0.449259 -0.0.449259 -0.0.449259 -0.0.6668 -0.0.71673 -0.0.6668 -0.0.777339068 -0.0.777339068 -0.0.113228 -0.0.1132 | 0.0650151695000000000000000000000000000000 | 903767958837473178193763162594110061141070 97559741498637473178193763143154594110061141070 97555554444444373378737878787555555555555 | 1.72127147236949622508875098850994211.099885095655221083770000000000000000000000000000000000 | 0.9117 0.9116 0.9119 0.99119 0.9 | |

TABLE 1.15
SURFACE PRESSURE MEASUREMENTS

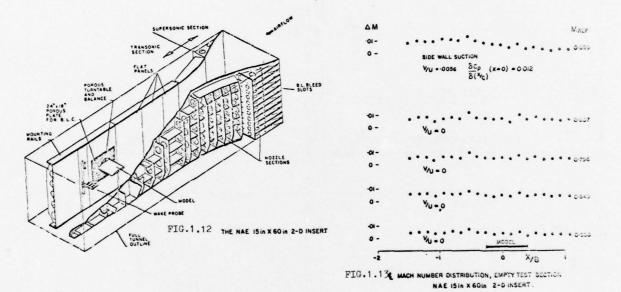
| | | RUN NUMB | EP 2784 | | | ONERA 20 | TESTS | |
|-----------|--|--|---|---|---|--|--|--------|
| SCAN 1 | 0.930 | RE/E6 42.75 | 145.92 | 541. | 70 94 | 83.47 | 50.56 | 0.0025 |
| | TJBE | x/c | Co | MLDC | P/P0 | 2/25 | MTUN | |
| | ELLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLUUUUUU | 04447590199759820104449959820104449959820100000000000000000000000000000000000 | 1.4242905970112831058400971010992900111094244001000000000000000000 | 00000000000000000000000000000000000000 | 714759999461592100988765589652877895440097897944969886677652470683487822227122345764298886677642200988765589652877895445555557665531987654706834447068744444444444447857787878787878787878787 | 1.2995 1.2995 1.2995 1.299882 1.29982 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1.299882 1 | 0334311210233300000000000000000000000000 | |
| | 26U 27U 28U 30U 31U 32U 33U 35U 36U 36U 40U 42U | 0.4893 0.5199 0.55497 0.56097 0.66395 0.66396 0.7296 0.77596 0.77596 0.8194 0.9693 | -0.665 -0.6637 -0.6637 -0.6667 -0.667 -0.679 -0.675 -0.675 -0.694 -0.704 -0.685 -0.724 -0.607 -0.116 | 1.337 1.337 1.3351 1.3354 1.356 1.356 1.356 1.356 1.356 1.358 1.3954 0.994 | 0.344 0.351 0.344 0.335 0.335 0.335 0.335 0.336 0.336 0.336 0.356 0.356 | 0.600 0.601 0.601 0.601 0.596 0.589 0.5894 0.577 0.588 0.564 0.564 | 0.930 0.932 0.933 0.933 0.933 0.930 0.930 0.930 0.930 0.930 | |

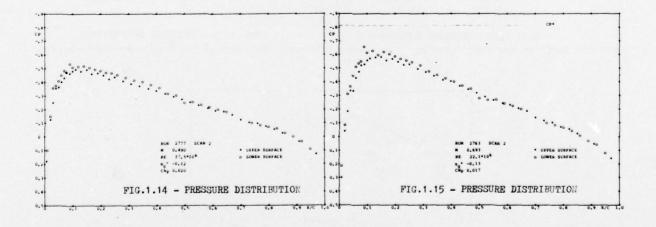


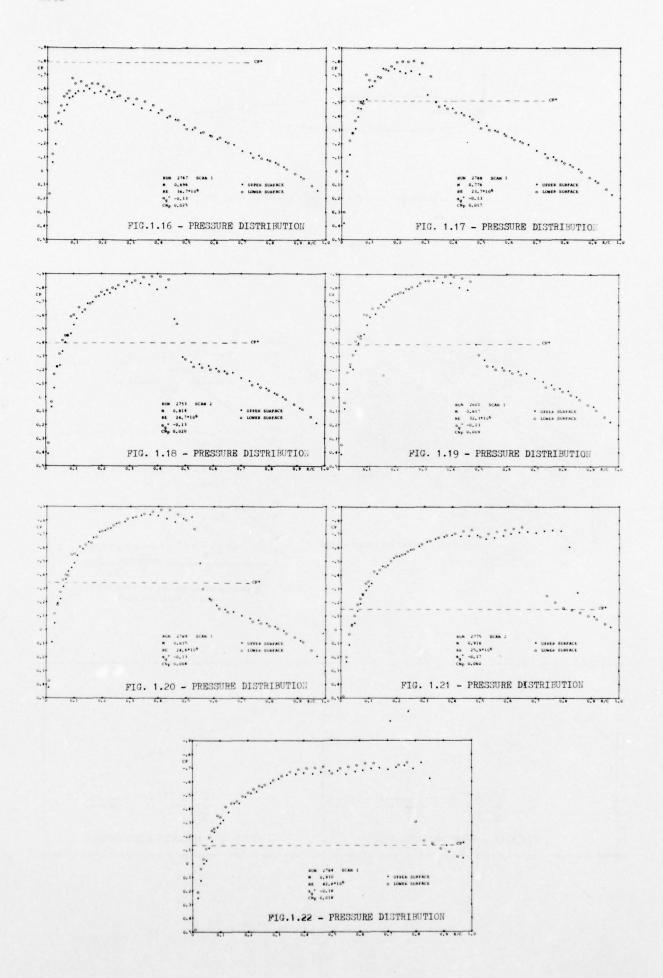
$$\frac{Y}{C} = 0.60 \left[0.29690 \sqrt{\frac{x}{C}} - 0.12600 \frac{x}{C} - 0.35160 \left(\frac{x}{C} \right)^2 + 0.28430 \left(\frac{x}{C} \right)^3 - 0.10150 \left(\frac{x}{C} \right)^4 \right]$$

$$\frac{x}{C} = 0.0158$$
(Ref. 1)

FIG. 1.11 NACA 0012 AIRFOIL







2. NLR QE 0.11 - 0.75 - 1.375 airfoil

contributed by

National Aerospace Laboratory NLR Amsterdam, The Netherlands

and

National Aeronautical Establishment Ottawa, Canada

2.1 Introduction

The NLR (Q)uasi (E)lliptical airfoil 0.11-0.75-1.375 was selected primarily for the following reasons:

i. It is a symmetrical ("shock-free") airfoil and thus provides, at zero incidence, a case where the aerodynamic characteristics (such as shock position) of a supercritical airfoil, as measured in the wind tunnel, are not affected by wall interference due to lift. One significant source of possible discrepancy between interference free computational results and wind tunnel experiment is thus absent.

tional results and wind tunnel experiment is thus absent.

ii.Tests were performed at low Reynolds number (\$\approx 2 \times 10^6\$), both with free and fixed transition, in the NLR Pilot Tunnel and at high Reynolds number (\$\approx 20 \times 10^6\$) in the 2-D insert of the NAE 5 ft x 5 ft transonic wind tunnel. In spite of the fact that there are vast differences between the two tunnel configurations (slotted versus porous walls, height/chord ratio 3.1 versus 6.0, span/chord ratio 2.3 versus 1.5) there is a comforting degree of similarity between the two data sets, suggesting that blockage effects in both tunnels were indeed small.

It should finally be mentioned that the tests were performed specifically to verify experimentally the existence of supercritical shock-free flow on an airfoil that was designed theoretically to exhibit this feature. For this reason more than usual care was taken to perform the experiments as accurately as possible.

2.2. DATA SET FROM NLR TUNNEL

1. Airfoil

- 1.1. Airfoil designation
- 1.2. Type of airfoil

1.2.1. airfoil geometry nose radius maximum thickness base thickness

1.2.2. design condition

design pressure distribution

- 1.3. Additional remarks
- 1.4. References on airfoil

2. Model geometry

- 2.1. Chord length
- 2.2. Span
- 2.3. Actual model co-ordinates and accuracy
- 2.4. Maximum thickness
- 2.5. Base thickness
- 2.6. Additional remarks
- 2.7. References on model

3. Wind tunnel

- 3.1. Designation
- 3.2. Type of tunnel
 - 3.2.1. stagnation pressure 3.2.2. stagnation temperature
 - 3.2.3. humidity/dew point
- 3.3. Test section
 - 3.3.1. dimensions
 - 3.3.2. type of walls
- 3.4. Flow field (empty test section) 3.4.1. reference static pressure
 - 3.4.2. flow angularity
 - 3.4.3. Mach number distribution
 - 3.4.4. pressure gradient
 - 3.4.5. turbulence/noise level
 - 3.4.6. side wall boundary layer
- 3.5. Additional remarks
- 3.6. References on wind tunnel

4. Tests

- 4.1. Type of measurements
- 4.2. Tunnel/model dimensions
- 4.2.1. height/chord ratio
- 4.2.2. width/chord ratio
- 4.3. Flow conditions included in present data base 4.3.1. angle of attack

 - 4.3.2. Mach number
 - 4.3.3. Reynolds number
 - 4.3.4. transition
 - position of free transition
 - transition fixing

NLR QE 0.11-0.75-1.375

symmetrical, "peaky"-type shock-free supercritical designed by means of Nieuwland

hodograph method

see fig. 2.1 and tables 2.1 , 2.2 R /c = 4.4% t/c = 11.7%

zero

potential flow (hodograph theory):

M = 0.786, $\alpha = 0^{\circ}$ experiment (NLR Pilottunnel)

 $M_{+} = 0.789, \alpha = 0^{\circ}$

see fig. 2.1 , table 2.1

none

ref. 1

0.1795 m

0.42 m

fig. 2.2

t/c = 11.7%

0.05 mm

finite trailing-edge (base) thickness was obtained by cutting-off theoretical airfoil

at 99.7 % chord

see ref. 2

NLR Pilot tunnel

continuous, closed circuit

atmospheric

313 + 1 K

varies with atmospheric condition (stagnation

temperature chosen such that condensation is avoided)

see fig. 2.3

rectangular

height 0.55 m, width 0.42 m

10% slotted top and bottom walls,

solid side walls

separate top and bottom plenums

taken at side wall 3.6 chords upstream of model

upwash $\Delta \alpha = 0.12^{\circ} (+ 0.03^{\circ})$

(with respect to tunnel reference plane)

see fig. 2.4a

see fig. 2.4b

see fig.2.5 and ref. 5

thickness 10% of test section semi-width,

no special treatment

for two-dimensionality of the flow

see ref. 4

ref. 3

surface pressures wake pitot pressures surface flow visualization flow field visualization

2.3.

zero

0.30 to 0.85 about 2×10^6 (see fig. 2.6)

free and fixed

see fig.2.7

grit no. 220 carborundum at 5-10% chord

4.4. Additional remarks with free transition a laminar separation bubble was present between 9 and 18% chord at design condition 4.5. References on tests ref. 2 5. Instrumentation 5.1. Surface pressure measurements 5.1.1. pressure holes diameter 0.1 mm on first 20% chord, 0.25 mm aft of 20% chord; depth 1 mm $^{\circ}$ - size - spanwise station(s) staggered (+ 25 mm around center line) - chordwise positions table 2.3 one + 7.5 psi and one + 5 psi Statham differential transducer + Scanivalves; 5.1.2. type of transducers and scanning devices reference pressure p 5.1.3. other none 5.2. Wake measurements 5.2.1. type/size of instrument(s) single translating total-head pressure tube of 1.5 mm diameter 5.2.2. streamwise position(s) 0.8 chords downstream of trailing edge 5.2.3. type of transducers and scanning devices + 2.5 psi Statham differential pressure Fransducer referenced to p 5.3. Boundary layer measurements none 5.3.1. type/size of instruments 5.3.2. locations 5.3.3. type of transducers and scanning devices 5.4. Skin friction measurements none 5.4.1. type/size of instruments 5.4.2. locations 5.4.3. type of transducer 5.5. Flow visualization 5.5.1. flow field shadow and Schlieren pictures 5.5.2. surface flow detection of transition position by sublimation technique (acenaphtene) and surface oil flow 5.6. other no 5.7. Additional remarks none 5.8. References on instrumentation none 6. Data 6.1. Accuracy (wall interference excluded) + 0.02° 6.1.1. angle of attack setting 6.1.2. free stream Mach number: - setting + 0.002 - variation during one pressure scan 6.1.3. pressure coefficients + 0:002 to + 0.020, depending on local pressure level and dynamic pressure 6.1.4. aerodynamic coefficients unknown 6.1.5. boundary layer quantities n.a. 6.1.6. repeatability unknown 6.1.7. remarks none 6.2. Wall interference corrections (indicate estimated accuracy) 6.2.1. angle of attack n.a. 6.2.2. blockage (solid/wake) IAM KO.005 6.2.3. streamline curvature n.a. 6.2.4. other 6.2.5. remarks wall interference in NLR Pilot tunnel is presently being reassessed 6.2.6. references on wall interference corrections ref. 6 6.3. Presentation of data fig. 2.8 , table 2.4 6.3.1. aerodynamic coefficients 6.3.2. surface pressures fig. 2.9 , table 2.4 6.3.3. boundary layer quantities n.a. 6.3.4. wall interference corrections no included?

Service de la companya del la companya de la compan

yes

4.3.5. temperature equilibrium

6.3.5. corrections for model deflection

6.3.6. Empty test section calibration taken into account?

6.3.7. other corrections included?

6.3.8. additional remarks

6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?

6.5. To be contacted for further information on tests

no

fixed transition surface pressure data are affected by disturbances due to transition

band

Yes, NAE 5 x 5 ft 2-D insert Data included in present data base

J.A. van Egmond National Aerospace Laboratory NLR Anthony Fokkerweg 2 Amsterdam 1017 Netherlands

7. References

1. Boerstoel, J.W.

2. Spee, B.M., and Uylenhoet, R.

3. Zwaaneveld, J.

4. Dambrink, H.A.

5. Ross, R.and Rohne, P.B.

6. Smith, J.

A survey of symmetrical transonic potential flows around quasi-elliptical aerofoil sections NLR Report T. 136, 1967

Pressure measurements on symmetrical quasielliptical aerofoil sections designed for shock-free transonic flow NLR TR 69041

Principal data of the NLL Pilot Tunnel NLR MP. 185

Investigation of the two-dimensionality of the flow around a profile in the NLR 0.55x0.42 $\rm m^2$ transonic wind tunnel NLR Memorandum AC-72-018

Noise environment in the NLR transonic wind tunnel $\ensuremath{\mathsf{HST}}$ NLR TR 74128 U

Values of wall interference corrections for the NLR Pilot Tunnel with 10% open test section NLR Memorandum AC-74-01

8. List of symbols

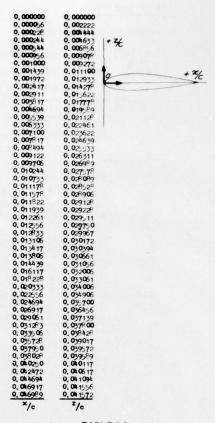
8.1. used in text and figures

```
C<sub>p</sub> (CP) pressure coefficient
C<sub>p</sub> critical pressure coefficient
              critical pressure coefficient
              airfoil chord length
     C
     c<sub>d</sub> (CD) drag coefficient
              lift coefficient
     cl
              pitching moment coefficient (with respect to .25c)
              integer indicating pressure hole number
     M(MA-NO)free stream Mach number
     M<sub>m</sub>
              maximum local Mach number
              local static pressure
     p
              free stream static pressure
     Poo
              free stream stagnation pressure
     Po
              dynamic pressure
     Rec
              Reynolds number based on chord
     Ro
              leading edge radius
              airfoil maximum thickness
              airfoil coordinate system
     x,z
              windtumel coordinate system
     xt,zt
     a (ALFA) angle of attack
     subscript
              refers to uncorrected values
8.2. used in data tables
              a (degrees) (with respect to flow direction)
     alpha
     cd
```

 $_{c_{p}}^{c_{d}}$ cpi,cp wake total head deficit pressure coefficient cpw integer indicating pressure hole number nominal, "set" Mach number i ma.nom M_{t} at beginning of scanning cycle macs Mt, at end of scanning cycle mace local static pressure (kgf/m²) free stream stagnation pressure (kgf/m²) po re c/Ro curvature of nose surface slope

| | ×. | (t/c)max | *(t/c)max | xMm/c | c/Ro |
|---------|---------|-------------|----------------|---------|---------|
| . 78612 | 1.306 | 0.1172 | 0.3245 | 0.0182 | 22.902 |
| | I/c | z /o | c _p | P/Po | 0 |
| | 0 | . 0 | 1.1642 | 1.00000 | 1.5708 |
| | 0.00100 | 0.00927 | 1.0440 | 0.96543 | 1.3560 |
| | 0.00197 | 0.01293 | 0.9269 | 0.93174 | 1.2676 |
| | 0.00291 | 0.01562 | 0.8127 | 0.89889 | 1.2001 |
| | 0.00382 | 0.01778 | 0.7014 | 0.86687 | 1.1437 |
| | 0.00469 | 0.01959 | 0.5930 | 0.83566 | 1.0942 |
| | 0.00554 | 0.02113 | 0.4874 | 0.80530 | 1.0499 |
| | 0.00633 | 0.02246 | 0.3845 | 0.77567 | 1.0095 |
| | 0.00710 | 0.02362 | 0.2844 | 0.74688 | 0.9722 |
| | 0.00774 | 0.02464 | 0.1870 | 0.71887 | 0.9376 |
| | 0.00849 | 0.02553 | 0.0922 | 0.69156 | 0.9052 |
| | 0.00896 | 0.02631 | 0.0000 | 0.66508 | 0.8747 |
| | 0.00971 | 0.02699 | -0.0896 | 0.63930 | 0.8459 |
| | 0.01024 | 0.02758 | -0.1768 | 0.61419 | 0.8186 |
| | 0.01073 | 0.02809 | -0.2614 | 0.58986 | 0.7926 |
| | 0.01118 | 0.02853 | -0.3437 | 0.56622 | 0.7677 |
| | 0.01158 | 0.02890 | -0.4235 | 0.54322 | 0.7439 |
| | 0.01182 | 0.02913 | -0.4754 | 0.52828 | 0.7284 |
| | 0.01194 | 0.02923 | -0.5010 | 0.52091 | 0.7208 |
| | 0.01226 | 0.02951 | -0.5762 | 0.50106 | 0.6983 |
| | 0.01256 | 0.02975 | -0.6492 | 0.47829 | 0.6761 |
| | 0.01283 | 0.02997 | -0.7199 | 0.45797 | 0.6539 |
| | 0.01311 | 0.03017 | -0.7885 | 0.43821 | 0.6313 |
| | 0.01342 | 0.03039 | -0.8549 | 0.41914 | 0.6074 |
| | 0.01381 | 0.03066 | -0.9192 | 0.40061 | 0.5807 |
| | 0.01444 | 0.03106 | -0.9815 | 0.38267 | 0.5475 |
| | 0.01611 | 0.03200 | -1.0418 | 0.36536 | 0.4892 |
| | 0.02033 | 0.03401 | -1.0418 | 0.36536 | 0.4017 |
| | 0.02906 | 0.03714 | -0.9815 | 0.38267 | 0.2987 |
| | 0.04699 | 0.04157 | -0.9192 | 0.40061 | 0.1996 |
| | 0.07251 | 0.04584 | -0.8549 | 0.41914 | 0.1405 |
| | 0.10589 | 0.04984 | -0.7885 | 0.43821 | 0.1009 |
| | 0.15050 | 0.05357 | -0.7199 | 0.45797 | 0.0682 |
| | 0.20673 | 0.05656 | -0.6492 | 0.47829 | 0.0393 |
| | 0.27574 | 0.05832 | -0.5762 | 0.50106 | 0.0128 |
| | 0.36312 | 0.05826 | -0.5010 | 0.52091 | -0.0131 |
| | 0.39644 | 0.05766 | -0.4754 | 0.52828 | -0.0219 |
| | 0.46620 | 0.05553 | -0.4235 | 0.54322 | -0.0394 |
| | 0.56833 | 0.05021 | -0.3437 | 0.56622 | -0.0646 |
| | 0.65802 | 0.04339 | -0.2614 | 0.58986 | -0.0877 |
| | 073301 | 0.03538 | -0.1768 | 0.61419 | -0.1084 |
| | 0.79462 | 0.02867 | -0.0896 | 0.63930 | -0.1263 |
| | 0.84588 | 0.02136 | 0.0000 | 0.66508 | -0.1410 |
| | 0.88839 | 0.01559 | 0.0922 | 0.69156 | -0.1513 |
| | 0.92366 | 0.01012 | 0.1870 | 0.71887 | -0.1515 |
| | 0.95324 | 0.00552 | 0.2844 | 0.74688 | -0.1499 |
| | 0.97808 | 0.00202 | 0.3845 | 0.77567 | -0.1260 |
| | 0.99877 | 0.00002 | 0.4874 | | |
| | 1.00000 | 0.00002 | 0.4974 | 0.80530 | -0.0343 |

TABLE 2.1
Main characteristics of aerofoil section 0.11 – 0.75 – 1.375



. TABLE 2.2
Detailed co-ordinates of quasi-elliptical aerofoil section 0.11 - 0.75 - 1.375

| 0, 049211 | 0.042011 | 0, 152722 | 0.053722 | 0, 336094 | 0, 058517 | 0,596106 | 0.048317 | | |
|------------|-------------|--------------------|-------------|-------------|-------------|-------------|------------|----------------------|------------|
| 0, 05 1433 | 0, 042433 | 0, 154944 | 0, 053867 | 0. 34 1650 | 0. 058478 | 0,601661 | 0.047911 | | |
| 0.053656 | 0.042844 | 0, 157167 | 0,054011 | 0.347206 | 0.058433 | 0.607217 | 0.047500 | | |
| 0,055878 | 0.043239 | 0. 159389 | 0, 054156 | 0.352761 | 0, 0, 8383 | 0.612772 | 0.047083 | | |
| 0.058100 | 0, 043622 | 0, 161611 | 0,054294 | 0. 358317 | 0.058317 | 0,613172 | 0.047056 | | |
| 0.059750 | 0.043900 | 0, 163833 | 0, 05 44 28 | 0.353122 | 0.05.256 | 0,619728 | 0,046628 | | |
| 0, 06 1972 | 0. 044256 | 0, 166056 | 0, 054561 | 0, 36%7 | 0.0 817 | 0,624283 | 0, 046 139 | | |
| 0,064194 | 0, 044606 | 0, 168278 | 0.054694 | 0.374233 | 0.052094 | 0,629839 | 0.045750 | | |
| 0, 0664 17 | 0, 044950 | 0, 170500 | 0. 054822 | 0.379783 | 0. 0. 7994 | 0,635394 | 0.045294 | | |
| 0,068639 | 0.045278 | 0.172722 | 0. 05 4944 | 0.305339 | 0.0.7994 | 0,640050 | 0.044939 | | |
| 0,070861 | 0.045600 | 0. 174944 | 0.055067 | 0, 390094 | 0. 057783 | 0,646,06 | 0.044372 | | |
| 0.072511 | 0.045839 | 0, 177 167 | 0.055189 | 0, 396439 | 0, 0, 7661 | 0,652061 | 0.043894 | | |
| 0. 074733 | 0.046150 | 0, 178617 | 0.055267 | 0, 401994 | 0.057532 | 0,657617 | 0.043411 | | |
| 0. 076956 | 0.046450 | 0, 18 0 839 | 0, 055383 | 0.407550 | 0. 0.7406 | 0,659017 | 0. 043379 | | |
| 0. 079178 | 0.046750 | 0, 183061 | 0. 055494 | 0.413106 | 0. 0. 7261 | 0.663572 | 0.042003 | | |
| 0,081400 | 0.047039 | 0. 185283 | 0.055606 | 0, 4 18661 | 0. 0 7111 | 0,669128 | 0.042393 | | |
| 0.083622 | 0.047322 | 0. 187506 | 0.055717 | 0. 424217 | 0.0.60.5 | 0.674683 | 0.041972 | | |
| 0.085844 | 0, 047600 | 0, 18972 | 0.055822 | 0,429772 | 0.056789 | 0,680239 | 0, 041356 | 0.851422 | 0.021072 |
| 0.088067 | 0. 047867 | 0, 191950 | 0, 055922 | 0.431322 | 0. 0 6744 | 0.68-794 | 0.040828 | 0.856978 | 0.020267 |
| 0.089200 | 0.049006 | 0, 194 172 | 0.056028 | 0. 43627 | 0.056572 | 0,691350 | 0.040294 | 0, 962533 | 0.019461 |
| 0. 091422 | 0, 048267 | 0, 196394 | 0.05612P | 0. 44743 | 0.056309 | 0,695511 | 0.039889 | 0,867129 | 0.018783 |
| 0. 093644 | 0, 048522 | 0, 198617 | 0.056222 | 0, 447229 | 0.06194 | 0.701067 | 0.039339 | 0,872683 | 0.017961 |
| 0. 095867 | 0, 048772 | 0, 200839 | 0, 0,6317 | 0. 15 35 44 | 0.0.6000 | 0,706622 | 0.038783 | 0.878239 | 0.017931 |
| 0. 098089 | 0. 049017 | 0, 203061 | 0,056411 | 0, 1, 2100 | 0.05794 | 0.712178 | 0. 039217 | 0.883794 | 0.016294 |
| 0, 100311 | 0. 049256 | 0,20,283 | 0.056500 | 0.464656 | 0.0557 | 0.717733 | 0, 037639 | 0, 388389 | 0.015589 |
| 0. 102533 | 0.049489 | 0, 206733 | 0.056556 | 0, 466:00 | 0. 0.55 17 | 0. 723289 | 0.037056 | 0, 893944 | 0.014728 |
| 0, 104756 | 0. 049722 | 0, 212289 | 0, 0, 6767 | 0. 471756 | 0.055294 | 0.728844 | 0, 036461 | 0, 899500 | 0,013872 |
| 0, 105894 | 0, 049839 | 0.217844 | 0.056967 | 0. 477311 | 0.0 067 | 0.733006 | 0,036011 | 0,90,06 | 0.013011 |
| 0, 108117 | 0, 0,0061 | 0,223400 | 0. 057156 | 0. 482967 | 0.0.4828 | 0.738561 | 0.035400 | 0,906022 | 0.012861 |
| 0, 110339 | 0.0.0279 | 0, 228956 | 0.057329 | 0.400422 | 0.040 | 0.744117 | 0.034783 | 0.911578 | 0. 01 1994 |
| 0, 112-61 | 0.0.0494 | 0, 234511 | 0, 057489 | 0, 493975 | 0.054326 | 0.749672 | 0. 034 156 | | 0,011122 |
| 0, 114783 | 0. 0.0700 | 0, 24 0067 | 0. 057639 | 0, 493 33 | 0.054067 | 0.75522 | 0.033522 | 0.917133 0.922689 | 0,010250 |
| 0, 117006 | 0.050911 | 0, 241233 | 0.057667 | 0.50.062 | 0.053800 | 0.760783 | 0.032878 | 0,923661 | 0,010111 |
| 0, 119229 | 0.051111 | 0, 246789 | 0. 057800 | 0.51064 | 0, 0, 3, 22 | 0, 763811 | 0,032522 | 0,929217 | 0.009233 |
| 0, 121450 | 0, 05 1311 | 0.25 2344 | 0.057920 | 0,5 16200 | 0. 0. 3230 | 0.769367 | 0.031861 | 0.934772 | 0.008367 |
| 0, 123672 | 0, 05 15 06 | 0, 257900 | 0.058039 | 0,5 17267 | 0.0 3183 | 0,774922 | 0.031194 | 0,938450 | 0,007789 |
| 0, 125894 | 0. 0 1694 | 0, 263456 | 0.058139 | 0, 22 22 | 0, 0, 2994 | 0.780479 | 0, 0305 17 | 0, 944006 | 0,00692 |
| 0, 128117 | 0, 0, 1879 | 0, 269011 | 0. 05°228 | 0.529378 | 0.052594 | 0, 786033 | 0.029828 | 0, 949561 | 0.006078 |
| 0, 128194 | 0.0.1889 | 0, 274567 | 0, 0, 2306 | 0.533933 | 0, 0, 2233 | 0, 79 15 89 | 0.029133 | 0,953244 | 0.005522 |
| 0, 1304 17 | 0.052072 | 0.275739 | 0. 058322 | 0,539469 | 0, 0, 1972 | 0, 794622 | 0.028750 | 0,958800 | 0.004689 |
| 0, 132639 | 0.0.250 | 0, 281294 | 0.058399 | 0.545 O4h | 0, 0, 1644 | 0,800178 | 0,028039 | 0,964356 | 0, 003878 |
| 0, 134861 | 0.052428 | 0, 286850 | 0. 0.8444 | 0.550600 | 0, 0, 1317 | 0.805733 | 0.027317 | 0,965667 | 0.003694 |
| 0, 137083 | 0.0.2600 | 0, 29 24 06 | 0.058489 | 0,556156 | 0, 0, 0978 | 0,811289 | 0.026589 | 0,971222 | 0.002917 |
| 0, 139306 | 0.05:767 | 0, 297961 | 0.058528 | 0.561711 | 0, 0, 0633 | 0, 816844 | 0.025950 | 0, 97677 | 0, 002183 |
| 0, 1415 28 | 0.052933 | 0, 3035 17 | 0.058556 | 0.567267 | 0, 0, 0278 | 0, 820244 | 0, 025 394 | 0,978083 | 0, 002017 |
| 0, 143750 | 0. 0. 3094 | 0.309072 | 0. 0.8567 | 0.568323 | 0, 0, 0211 | 0,92,800 | 0. 024644 | 0, 983639 | 0,001322 |
| 0. 145972 | 0.053256 | 0.314628 | 0.058579 | 0,573883 | 0.049844 | 0, 83 1356 | 0.023883 | 0,988528 | 0, 00077 |
| 0, 148194 | 0. 053411 | 0.319428 | 0.058572 | 0,579430 | 0, 049472 | 0, 936911 | 0.023111 | 0, 994083 | 0,00020 |
| 0, 1501 17 | 0.053567 | 0, 324983 | 0.0.8567 | 0.584994 | 0, 049094 | 0, 842467 | 0, 022333 | 0, 998967 | 0,000022 |
| 0, 150,00 | 0.053572 | 0, 330, 39 | 0. 058544 | 0,590,50 | 0,048711 | 0, 945867 | 0.021856 | 1. 000000 | 0, 000000 |
| | | | | | | | | | |
| */c | 2/c | ×/c | 2/c | */c | 2/c | ×/c | 2/c | ×/0 | */c |

TABLE 2.2 Detailed co-ordinates of quasi-elliptical aerofoil section 0.11-0.75-1.375

| | upper sur | face | | lower sur | face |
|---|-----------|--------|----|-----------------|--------|
| 1 | x/o | */。 | 1 | */o | */。 |
| 1 | 0 | 0 | 26 | 0.8997 | 0.0137 |
| 1 2 3 4 5 6 7 8 9 | 0.0013 | 0.0106 | 27 | 0.7995 | 0.0277 |
| 3 | 0.0046 | 0.0194 | 28 | 0.6999 | 0.0393 |
| 4 | 0.0094 | 0.0268 | 29 | 0.6010 | 0.0481 |
| 5 | 0.0198 | 0.0338 | 30 | 0.4999 | 0.0539 |
| 6 | 0.0342 | 0.0384 | 31 | 0.3998 | 0.0575 |
| 7 | 0.0492 | 0.0421 | 32 | 0.2998 | 0.0587 |
| 8 | 0.0745 | 0.0459 | 33 | 0.2008 | 0.0565 |
| 9 | 0.0992 | 0.0491 | 34 | 0.1500 | 0.0537 |
| 10 | 0.1493 | 0.0536 | 35 | 0.0999 | 0.0493 |
| 11 | 0.1994 | 0.0564 | 36 | 0.0499 | 0.0422 |
| 12 | 0.2491 | 0.0579 | 37 | 0.0251 | 0.0368 |
| 13 | 0.2996 | 0.0586 | 38 | 0.0108 | 0.0282 |
| 14 | 0.3496 | 0.0583 | 39 | 0.0056 | 0.0212 |
| 15 | 0.3992 | 0.0576 | 40 | 0.0019 | 0.0128 |
| 16 | 0.4492 | 0.0561 | | | |
| 17 | 0.4997 | 0.0539 | | | |
| 18 | 0.5593 | 0.0514 | | | |
| 19 | 0.6193 | 0.0467 | | upper sur | **** |
| 20 | 0.6792 | 0.0414 | | apper sur | 1000 |
| 21 | 0.7390 | 0.0349 | i | */ ₀ | */。 |
| 22 | 0.7993 | 0.0277 | | | |
| 23 | 0.8593 | 0.0197 | 41 | 0.0200 | 0.0338 |
| 24 | 0.9198 | 0.0107 | 42 | 0.2997 | 0.0586 |
| 25 | 0.9914 | 0.0006 | 43 | 0.6194 | 0.0467 |

TABLE 2.3 Co-ordinates of the model pressure holes

| | alpha maenom | 0 .00 0 .300 6 | | ed | 0.0095 | | alpha ma.nom. | 0.00 0.300 6 | | | | cd | 0. | .0118 | |
|--|--|-------------------------------------|--|--|--|---|--|--|--|--|--|--|--|--|---|
| | po | 1.07 10 101.44 | | macs mace | 0.303 | | re po | 1.10 .10 | | | | mc. | | 0.300 | |
| | MOI | DEL | | W | AKE | | MODEL | | | WAKE | | | | | |
| i 1 | epi i 1.026 25 | cpi i 0.177 1 | *t/c 0•0000 | ср м 0•000 | i **/c 21 0.0733 | ср и 0•165 | i cp p/po | i cp | p/po | i | It/c | c pw | i | **/c | c pw |
| 2 3 4 5 6 6 7 8 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 | 0.811 26 0.811 26 0.811 26 0.812 29 0.863 29 0.869 30 0.990 31 0.482 32 0.498 34 0.3160 35 0.319 36 0.322 37 0.294 38 0.266 40 0.252 4 0.210 43 0.210 43 0.116 0.017 0.017 | 0.002 2 0.002 0 0.168 | 0.0098 0.0146 0.0195 0.0244 0.0391 0.0342 0.0342 0.0348 0.0464 0.0488 0.0513 0.0537 0.0586 0.0611 0.06659 0.0684 | 0.002 0.003 0.006 0.012 0.028 0.055 0.097 0.193 0.212 0.230 0.243 0.255 0.259 0.259 0.253 0.253 | 21 0-0782 22 0-0782 23 0-0831 24 0-0879 25 0-0928 26 0-0977 27 0-1002 28 0-1050 | 0-117 0-073 0-010 0-018 0-007 0-005 0-005 | 1 1.029 1.0004 2 0.794 0.9865 3 4 -0.523 0.9864 6 -0.693 0.8864 6 -0.693 0.8983 7 -0.556 0.9064 8 -0.516 0.9086 9 -0.449 0.9128 10 -0.384 0.9166 11 -0.365 0.9701 13 -0.326 0.9701 14 -0.307 0.9712 15 -0.294 0.929 17 -0.262 0.929 17 -0.262 0.929 17 -0.262 0.929 18 -0.212 0.929 19 -0.212 0.938 20 -0.182 0.938 21 -0.145 0.938 22 -0.090 0.9383 24 0.072 0.9437 | 25 0.161 26 0.041 27 -0.080 28 -0.164 30 -0.062 32 -0.037 33 -0.337 33 -0.337 35 -0.451 36 -0.547 37 -0.547 44 -0.982 44 -0.92 42 -0.323 43 -0.220 | 0,9489 0,9416 0,9246 0,9261 0,9261 0,9224 0,9224 0,9193 0,9184 0,9040 0,8040 0,8891 0,8894 0,8894 0,8903 0,8954 | 1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 16 17 18 19 20 21 22 22 22 22 22 22 22 22 22 22 22 22 | 0,0000 0,0230 0,0462 0,0695 0,0929 0,1165 0,1639 0,1878 0,2117 0,2357 0,2598 0,382 0,382 0,382 0,381 2,4076 0,4076 0,4254 0,4254 | 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | 37 38 39 40 41 42 43 | 0,4397 0,4446 0,4495 0,4544 0,4544 0,4691 0,4739 0,4788 0,4984 0,4984 0,4984 0,5081 0,5179 0,5225 0,5277 0,5277 0,5372 0,5521 | 0.069 0.115 0.161 0.211 0.251 0.289 0.304 0.300 0.244 0.175 0.014 0.058 0.030 0.014 0.059 0.001 0.001 |
| | | | | | | | | | | | | | | | |
| | alpha | 0.00 | | cd | 0.0098 | | alpha | 0.00 | | | | cd | 0. | .0118 | |
| | alpha maenom ree po | 0.00 0.500 6 1.65 10 10113 | | cd macs mace | 0.502 0.502 | | alpha ma.nom. re po | 0.500 6 1.70 .10 10358 | | | | ed mees mees | | 0.502 0.501 | |
| | maenom ree po | 0.500 6 1.65 10 | | macs mace | 0.502 | | ma.nom. re po | 0.500 6 | | | | mac 9 | | 0.502 | |
| i 1 2 3 | maenom ree po | 0.500 6 1.65 10 10113 DEL | *t/c 0,0000 0,0049 0,0098 | macs mace | 0.502 0.502 | cpw 0.270 0.254 0.236 0.213 | ma.nom. re po | 0.500 6 1.70 .10 10358 | p/po 0.8687 0.84% 0.825 0.8157 | i 1 2 3 | **/c 0.0000 0.0232 0.0465 0.0699 | mac 9 | | 0.502 | o.073 0.117 0.169 0.220 |

TABLE 2.4.1 Free transition data

TABLE 2.4.2 Fixed transition data

| alpha 0.00 ma.nom 0.600 6 re. 1.89 10 po 10099 | cd 0.0097 macs 0.601 mace 0.601 | | ad 0.0115 |
|---|---|--|--|
| MODEL | WAKE | MODEL | WAKE |
| i cpi i cpi i 1-093 25 0-194 1 2 0-895 26 0-0049 2 3 0-447 27 -0-101 3 4 0-314 28 -0-199 4 5 0-399 29 -0-262 5 6 0-802 30 -0-306 6 7 -0-688 31 -0-352 7 8 -0-570 32 -0-376 8 9 -0-514 33 -0-412 8 9 -0-514 33 -0-412 8 11 -0-411 35 -0-510 11 12 -0-377 37 -0-902 13 14 -0-378 36 -0-677 12 13 -0-377 37 -0-902 13 14 -0-342 40 0-833 16 15 -0-342 40 0-833 16 17 -0-305 41 -1-300 17 18 -0-219 42 -0-376 18 19 -0-219 43 -0-248 19 30 -0-210 20 21 -0-164 22 -0-376 18 22 -0-101 23 -0-018 24 -0-088 | ************************************** | CPW 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-251 0-252 0-186 0- | i x1/c cpw i x1/c cpw 1 0,0000 0,000 23 0,4118 0,044 2 0,0232 0,000 24 0,4167 0,061 3 0,0465 0,000 25 0,4216 0,127 5 0,0934 0,000 27 0,434 0,299 6 0,1171 0,000 29 0,441 0,299 7 0,1409 0,000 29 0,441 0,306 8 0,1647 0,000 39 0,4460 0,323 9 0,1887 0,000 39 0,4509 0,323 10 0,747 0,000 39 0,4509 0,323 11 0,2610 0,000 31 0,460 0,23 12 0,2610 0,000 31 0,460 0,23 13 0,2652 0,000 35 0,405 0,033 14 0,305 0,000 36 0,465 0,219 15 0,3338 0,000 37 0,4802 0,013 16 0,3581 0,000 38 0,465 0,019 17 0,3825 0,000 38 0,450 0,013 16 0,3581 0,000 38 0,450 0,019 17 0,3825 0,000 38 0,450 0,013 16 0,3581 0,000 38 0,450 0,019 18 0,3974 0,000 38 0,450 0,019 18 0,3972 0,000 40 0,4949 0,006 19 0,3923 0,000 41 0,4949 0,006 20 0,3972 0,003 47 0,5047 0,000 21 0,4021 0,009 43 0,5095 0,000 |
| alpha 0.00 maenom 0.700 6 re. 2.14 10 po 10312 | cd 0.0096 macs 0.702 mace 0.702 | 01phm 0,00 mm.nom, 0,700 6 re 2,14,10 po 10296 | od 0.0118 macs 0.702 macs 0.701 |
| MODEL | ************************************** | MODEL | WAKE |
| 1 | 1/e cpw i 1/e 0.0000 0.000 21 0.0782 0.0009 0.000 22 0.0831 0.0098 0.006 23 0.0879 0.0116 0.016 24 0.0928 0.0195 0.036 25 0.0977 0.0214 0.067 26 0.1026 0.0293 0.108 27 0.1075 0.0342 0.156 28 0.1124 0.0391 0.253 0.0488 0.284 0.0513 0.297 0.0517 0.304 0.0562 0.306 0.0986 0.304 0.0611 0.298 0.0635 0.298 0.0684 0.253 0.0733 0.208 | cpw i cp p/po i cp p/po 0a159 0a159 0.1678 0.7678 0.0608 0.7678 0.059 0.7678 0a068 3 0.928 0.9590 2.059 0.059 0.7353 0a017 4 -0.789 0.6493 22 -0.218 0.6668 0a017 5 -1.104 0.4478 29 -0.233 0.6483 0a000 6 -0.861 0.5017 30 -0.361 0.613 0.049 0.6120 0.6493 0.0430 0.6121 0.6121 0.0595 0.7043 0.6210 0.631 0.6121 0.0431 0.0431 0.0433 0.0433 0.0433 0.6123 0.0432 0.6123 0.7043 0.6123 0.7043 0.6123 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 0.3571 | i #1/c cpw i #1/c cpw 1 0,0000 0,000 28 0,4495 0,191 2 0,0230 0,000 28 0,4544 0,242 3 0,0462 0,000 29 0,4593 0,266 4 0,0695 0,000 30 0,4642 0,316 6 0,1165 0,000 32 0,4739 0,336 6 0,1165 0,000 33 0,4683 0,300 8 0,1639 0,000 34 0,4837 0,266 9 0,1878 0,000 35 0,4886 0,238 10 0,2117 0,000 36 0,4935 0,193 11 0,2577 0,000 37 0,4984 0,142 12 0,2598 0,000 38 0,5033 0,094 12 0,2598 0,000 38 0,5033 0,094 14 0,3082 0,000 40 0,5130 0,005 15 0,3325 0,000 41 0,5179 0,015 16 0,3568 0,000 42 0,4379 0,005 17 0,3812 0,000 43 0,5277 0,002 17 0,3812 0,000 43 0,5277 0,002 17 0,3812 0,000 43 0,5277 0,002 18 0,4040 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5375 0,001 19 0,4104 0,001 45 0,5752 0,000 19 0,4404 0,005 47 0,5472 0,001 21 0,4309 0,055 50 0,6008 0,000 22 0,4399 0,059 50 0,6008 0,000 23 0,4446 0,139 |
| alpha O ₀ 00 ma_nom O ₀ 710 6 re 2 ₀ 23 10 po 10416 | cd 0.0098 macs 0.711 mace 0.711 | alpha 0,00 un_nom 0,740 6 re 2,21,10 po 10295 | cd 0.0118 macs 0.740 macs 0.740 |
| MODEL | WAKE | MODEL | WAKE |
| 1 | **I/c | CPW 0.212 0.202 0.792 0.793 0.693 0.7412 0.763 0.7613 0.7615 0.7612 0.7612 0.7613 0.7713 0.7 | i |

| alpha 0.00 ma.nom 0.770 6 re. 2.28 10 po 10% 12 | od 0,0099 macs 0.771 mace 0.770 | nlphn 0.00 mm_nom. 0.770 6 re 2.26.10 po 10333 | od 0.0122 imce 0.771 imce 0.771 |
|--|---|---|---|
| i cpi i cpi i 1 1.159 25 0.221 1 | WAKE 21/c cpw 1 21/c cp 0.0000 0.000 21 0.0782 0.2 | i sp p/po i sp p/po | 1 21/c cpw 1 21/c cpw |
| 2 0. 985 26 0.0 76 2 3 0. 599 27 -0.0 98 3 | 0,0049 0,000 22 0,0931 0.1 0,0099 0,002 23 0,0979 0,1 | 9 1 1.162 1.0013 25 0.200 0.7319 0 2 0.977 0.9496 26 0.073 0.6960 | 1 0.0000 0.000 28 0.4544 0.252 2 0.0230 0.000 29 0.4593 0.293 |
| 4 -0.055 28 -0.226 4 5 -1.020 29 -0.319 5 | 0.0146 0.008 24 0.0928 0.0 0.0195 0.021 & 0.0977 0.0 | 4 -0.140 0.6364 28 -0.226 0.6123 5 -1.024 0.3888 29 -0.317 0.5868 | 3 0.0462 0.000 30 0.4642 0.327 4 0.0695 0.000 31 0.4691 0.342 5 0.0929 0.000 32 0.4739 0.345 |
| 6 -0.988 30 -0.386 6 7 -0.937 31 -0.454 7 8 -0.799 32 -0.494 8 | 0.0244 0.044 26 0.1026 0.0 0.0293 0.076 27 0.1075 0.0 0.0342 0.118 28 0.1124 0.0 | 0 0 0.952 0.4088 30 -0.400 0.5635 7 -0.822 0.4454 31 -0.456 0.5478 | 6 0.1165 0.000 33 0.4788 0.334 7 0.1401 0.000 34 0.4837 0.302 |
| 9 -0.714 33 -0.538 9 10 -0.612 34 -0.602 10 | 0.0342 0.118 28 0.1124 0.0 0.0391 0.167 29 0.1172 0.0 0.0440 0.214 30 0.1221 0.0 | 9 -0.829 0.4434 33 -0.555 0.5203 10 -0.550 0.5215 34 -0.544 0.5233 | 8 0.1639 0.000 35 0.4886 0.263 9 0.1878 0.000 36 0.4935 0.216 10 0.2117 0.000 37 0.4984 0.167 |
| 11 -0.507 35 -0.683 11 12 -0.523 36 -0.904 12 | 0.0488 0.257 31 0.1270 0.0 0.0537 0.289 | | 11 0.2357 0.000 38 0.5033 0.119 12 0.2598 0.000 39 0.5081 0.078 13 0.2840 0.000 40 0.5130 0.049 |
| 13 -0.495 37 -1.000 13 14 -0.464 38 -0.277 14 15 -0.441 39 0.517 15 | 0,0562 0,299 0,0586 0,306 | 14 -0.471 0.5438 38 -0.881 0.4287 15 -0.448 0.5500 39 -0.841 0.4399 16 -0.417 0.5587 40 -0.654 0.4923 | 14 0.3082 0.000 41 0.5179 0.029 15 0.3325 0.000 42 0.5228 0.015 |
| 15 -0. 441 39 0. 517 15 16 -0. 413 40 0. 935 16 17 -0. 383 41 -1. 011 17 | 0,0611 0,308 0,0635 0,306 0,0659 0,300 | 17 -0.388 0.5670 41 -1.030 0.3870 18 -0.344 0.5792 42 -0.502 0.5349 | 17 0.381? 0.001 44 0.5326 0.005 18 0.4056 0.001 45 0.5375 0.004 |
| 18 -0.344 42 -0.495 18 19 -0.298 43 -0.298 19 | 0, 0684 0, 289 0, 0708 0, 275 | 19 -0.298 0.5924 43 -0.309 0.5890 20 -0.244 0.6073 21 -0.179 0.6255 | 19 0.4104 0.002 46 0.5423 0.002 20 0.4153 0.005 47 0.5472 0.002 21 0.4202 0.011 48 0.5521 0.001 |
| 20 -0 , 242 20 21 -0 , 177 22 -0 , 095 | 0.0733 0.258 | 22 -0.097 0.6484 23 -0.001 0.6755 24 0.107 0.7058 | 22 0.4251 0.023 49 0.5765 0.001 23 0.4300 0.043 50 0.6008 0.000 24 0.4349 0.073 51 0.6252 0.000 |
| 23 0.005 24 0.119 | | | 25 0.4397 0.108 52 0.6494 0.000 26 0.4446 0.154 53 0.6737 0.000 27 0.4495 0.205 |
| | | | 27 0,207 |
| | | | |
| alpha 0.00 ma.nom 0.789 6 re. 2.31 10 | cd 0.0089 macs 0.789 | ma.nom. 0.790 6 | 0.0121 |
| po 10400 MODEL | mace O.789 | po 10327 MODEL | mace 0.790 mace 0.789 |
| 1 epi i epi i 1 1.168 25 0.239 1 | 21/c cpw i 21/c cpw 0.0000 0.000 21 0.0782 0.19 | i cp p/po i cp p/po | i 21/c cpw i 21/c cpw |
| 2 0.999 26 0.085 2 3 0.620 27 -0.096 3 | 0.0049 0.000 22 0.0831 0.13 0.0098 0.002 23 0.0879 0.09 | 1 1.167 1.0003 25 0.208 0.7230 2 0.998 0.9516 26 0.081 0.6863 | 1 0.0000 0.000 27 0.4495 0.217 2 0.0230 0.000 28 0.4544 0.259 3 0.0462 0.000 29 0.4593 0.300 |
| 4 -0.018 28 -0.229 4 5 -0.967 29 -0.326 5 6 -0.947 30 -0.396 6 | 0.0146 0.007 24 0.0928 0.05 0.0195 0.018 25 0.0977 0.02 0.0244 0.038 26 0.1026 0.01 | 4 -0.077 0.6348 28 -0.222 0.5985 5 -0.963 0.3842 29 -0.320 0.5704 | 4 0.0695 0.000 30 0.4642 0.329 5 0.0929 0.000 31 0.4691 0.343 6 0.1165 0.000 32 0.4739 0.342 |
| 7 -0.910 31 -0.452 7 8 -0.849 32 -0.552 8 | 0.0293 0.073 27 0.1075 0.00 0.0342 0.112 28 0.1124 0.00 | 7 -0.7% 0.4325 31 -0.472 0.5264 8 -0.779 0.4374 32 -0.528 0.5100 | 7 0.1401 0.000 33 0.4788 0.326 8 0.1639 0.000 34 0.4837 0.2% |
| 9 -0. 787 33 -0. 615 9 10 -0. 673 34 -0. 657 10 | 0.0391 0.163 29 0.1172 0.00 0.0440 0.211 30 0.1221 0.00 | 11 -0.514 0.5141 35 -0.838 0.4205 | 9 0.1878 0.000 35 0.4886 0.255 10 0.2117 0.000 36 0.4935 0.211 11 0.2357 0.000 37 0.4984 0.159 |
| 11 -0.618 35 -0.762 11 12 -0.579 36 -0.891 12 13 -0.468 37 -0.954 13 | 0.0188 0.254 0.0537 0.284 0.0562 0.292 | 12 -0.554 0.5025 36 -0.752 0.4452 13 -0.530 0.5094 37 -0.893 0.4044 14 -0.488 0.5217 38 -0.816 0.4269 | 12 0,2598 0,000 38 0,5033 0,117 13 0,2840 0,000 39 0,5081 0,078 14 0,3082 0,000 40 0,5130 0,043 |
| 14 -0.464 38 -0.233 14 15 -0.453 39 0.540 15 | 0.0586 0.297 0.0611 0.297 | 15 -0.464 0.5287 39 -0.775 0.4385 16 -0.428 0.5389 40 -0.593 0.4913 17 -0.397 0.5481 41 -0.965 0.3836 | 15 0.3325 0.000 41 0.5179 0.025 16 0.3568 0.001 42 0.5228 0.012 17 0.3812 0.001 43 0.5277 0.006 |
| 16 -0.425 LO 0.950 16 17 -0.394 L1 -0.953 17 | 0.0635 0.293 0.0659 0.283 | 18 -0.349 0.5619 42 -0.525 0.5109 19 -0.299 0.5764 43 -0.310 0.5731 | 18 0.4056 0.002 44 0.5326 0.003 19 0.4104 0.004 45 0.5375 0.002 |
| 18 -0. 352 42 -0. 461 18 19 -0. 303 43 -0. 303 19 20 -0. 242 20 | 0.0684 0.271 0.0708 0.254 0.0733 0.236 | 20 -0.241 0.5932 21 -0.174 0.6126 22 -0.090 0.6367 | 20 0.4153 0.006 46 0.5423 0.001 21 0.4202 0.013 47 0.5472 0.001 22 0.4251 0.027 48 0.5521 0.001 |
| 21 -0.1 74 22 -0.0 89 | | 23 0.008 0.6652 24 0.116 0.6965 | 23 0.4300 0.047 49 0.5765 0.001 24 0.4349 0.081 50 0.6008 0.000 25 0.4397 0.119 51 0.6252 0.000 |
| 23 0.01 5 24 0.1 34 | | | 26 0,4446 0,166 |
| | | | |
| | | | |
| alpha 0.00 ma.nom 0.800 6 re. 2.32 10 | cd O ₀ 0083 macs O ₀ 800 | alpha 0.00 ma.nom. 0.800 6 re 2.31 .10 | nace 0,800 |
| MODEL | mace 0.800 WAKE | MODEL | .mce 0.901 |
| i epi i epi i 1 1.174 25 0.254 1 | 0.0000 0.000 21 0.0782 0.1 | 1 | i zt/c cpw i zt/c cpw 1 0.0000 0.000 >9 0.4593 0.305 |
| 2 1,006 26 0,092 2 3 0,635 27 -0,093 3 4 0,005 28 -0,227 4 | | 2 2 1.004 0.9509 26 0.084 0.6806 | 2 0.0230 0.000 30 0.4642 0.331 3 0.0462 0.000 31 0.4691 0.345 |
| 5 -0. 935 29 -0. 326 5 6 -0. 921 30 -0. 387 6 | 0.0195 0.011 25 0.0977 0.0 0.0241 0.029 26 0.1026 0.0 | 2 5 -0.934 0.3615 29 -0.322 0.5612 9 6 -0.903 0.3905 30 -0.414 0.5343 | 4 0.0695 0.000 32 0.4739 0.344 5 0.0929 0.000 33 0.4758 0.326 6 0.1165 0.000 34 0.4837 0.295 |
| 7 -0.889 31 -0.440 7 8 -0.838 32 -0.618 8 9 -0.791 33 -0.667 9 | 0.0342 0.099 28 0.1124 0.0 | 2 8 -0.771 0.4293 32 -0.500 0.5091 | 7 0.1401 0.000 35 0.4886 0.255 8 0.1639 0.000 36 0.4935 0.207 9 0.1878 0.000 37 0.4984 0.162 |
| 10 -0.740 34 -0.703 10 11 -0.695 35 -0.761 11 | 0.0440 0.198 30 0.1221 0.0 | | 10 0.2117 0.000 38 0.5033 0.116 11 0.2357 0.000 39 0.5081 0.076 12 0.2598 0.000 40 0.5130 0.047 |
| 12 -0.640 36 -0.864 12 13 -0.586 37 -0.921 13 | 0.0537 0.277 0.0562 0.289 | 13 -0.476 0.5159 37 -0.860 0.4031 14 -0.431 0.5145 38 -0.753 0.4257 | 13 0.2840 0.000 41 0.5179 0.025 14 0.3082 0.000 42 0.5228 0.013 15 0.9325 0.000 43 0.5277 0.005 |
| 14 -0.458 38 -0.208 14 15 -0.399 39 0.554 15 16 -0.416 40 0.957 16 | 0.0611 0.295 | 16 -0.435 0.5281 40 -0.563 0.4904 17 -0.401 0.5379 41 -0.932 0.3819 | 16 0.3568 0.001 44 0.5326 0.003 17 0.3812 0.002 45 0.5375 0.002 |
| 17 -0.395 41 -0.925 17 18 -0.355 42 -0.587 18 | 0.0659 0.282 0.0684 0.269 | 19 -0.300 0.5679 43 -0.311 0.5645 20 -0.241 0.5852 | 19 0.4104 0.004 47 0.5472 0.001 20 0.4153 0.006 48 0.5521 0.001 |
| 19 -0.305 43 -0.304 19 20 -0.243 20 21 -0.175 | | 21 -0.171 0.6055 22 -0.086 0.6306 23 0.013 0.6596 | 22 0.4251 0.026 50 0.6008 0.001 23 0.4300 0.051 51 0.6252 0.001 |
| 22 -0.087 23 0.018 | | 24 0.120 0.6711 | 24 0,4349 0,084 52 0,6494 0,001 25 0,4397 0,124 53 0,6737 0,000 26 0,4446 0,173 54 0,6978 0,000 |
| 24 0.141 | | | 27 0.4495 0.223 55 0.7219 0.000 |

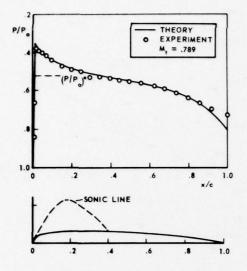
TABLE 2.4.1 Free transition data (con'd)

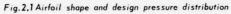
TABLE 2.4.2 Fixed transition data (con'd)

| | al pha | 0. | 0.00 .820 6 | | od | 0,009 | | | alpha ma.nom. | 0.00 0.820 6 | | | | cd | 0.0 | M43 | |
|--|--|---|-----------------|--|--|--|------|---|--|---|--|---|--|-------|--|---|---|
| | re. po | | 2.35 10 0375 | | Bace | 0.82 | | | po po | 2.35 .10 | | | | macs | | 0.821 0.821 | |
| | | MODEL | | | • | AKE | | | MO | DEL | | | | WA | KE | | |
| 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 8 19 20 1 22 23 24 | 1. 0 19 0. 656 0. 084 -0. 876 -0. 859 -0. 762 -0. 762 -0. 722 -0. 722 -0. 726 -0. 726 -0. 654 -0. 514 -0. 224 | 25 0.0 26 0.0 27 -0.0 28 -0.0 29 -0.0 331 -0.0 333 -0.0 333 -0.0 337 -0.0 337 -0.0 337 -0.0 441 -0.0 442 -0.0 | cpi i | 81/c 0, 0000 0, 1438 0, 2410 0, 2641 0, 2752 0, 2898 0, 2947 0, 2947 0, 3045 0, 3143 0, 3143 0, 3265 0, 3338 0, 3338 | 0,000 0,001 0,002 0,002 0,002 0,003 0,005 0,019 0,019 0,283 0,192 0,283 0,311 0,312 0,314 0,307 | 21 20 20 20 21 20 20 20 20 20 20 20 20 20 20 20 20 20 | *1/e | 1 | p/po 0.9957 0.9515 0.63794 0.3836 0.4271 0.4155 0.4271 0.4 | i cp 25 0.215 26 0.923 27 -0.071 28 -0.702 29 -0.202 30 -0.342 31 -0.744 32 -0.740 33 -0.711 34 -0.711 34 -0.711 34 -0.712 34 -0.212 42 -0.732 43 -0.207 | p/po 0.7074 0.6704 0.5888 0.5581 0.5581 0.4230 0.4230 0.4273 0.4273 0.4273 0.4273 0.4273 0.4273 0.4274 0.4363 0.4286 | 2 3 4 5 6 7 8 9 10 11 2 13 4 4 15 16 7 18 9 20 21 22 23 24 5 26 27 8 29 30 31 32 31 32 31 32 31 32 31 32 31 32 31 32 31 32 31 32 31 31 31 31 31 31 31 31 31 31 31 31 31 | **/c 0,0000 0,020 0,062 0,065 0,065 0,065 0,165 0,1406 0,1407 0,167 0,277 0,259 0,2840 0,2840 0,2840 0,366 0 | Cpw C | 36 37 38 39 40 41 42 43 44 45 46 46 47 48 49 50 50 50 50 50 50 50 50 60 60 60 60 60 60 60 60 60 60 60 60 60 | **, 6. 0. 465 43 0. 46642 0. 465 43 0. 46642 0. 467 93 0. 46642 0. 467 93 0. 467 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 501 93 0. 766 93 0. 767 93 0. 767 93 0. 8175 | 0,311 0,337 0,349 0,356 0,309 0,273 0,221 0,013 0,002 0,003 0,013 0,000 0,000 |
| | alpha ma.nom | | •00 850 6 | | cd | 0,0201 | | | alpha ma,nom, | 0.00 0.850 6 | | | c | 4 0 | .0243 | | |
| | re. po | .2 | •38 10 335 | | macs | 0.851 | | | III . Closii. | | | | | | | | |
| | | MODEL | | | mace | 0.851 | | | po po | 102% | | | ma.c | | 0.85 | 0 | |
| 1 2 3 | epi 1.199 | | L | *1/c | | 0.851 AKE | | | ро | 102% DEL | | | | | 0.85 | · · · · · · · · · · · · · · · · · · · | |

TABLE 2.4.1 Free transition data (concluded)

TABLE 2.4.2 Fixed transition data (concluded)





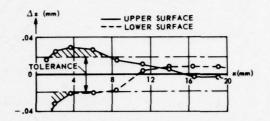


Fig. 2,2 Deviation of realised model profile from theoretical shape (nose region)

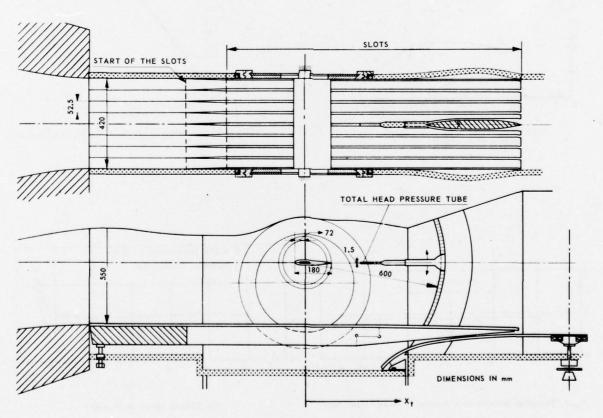
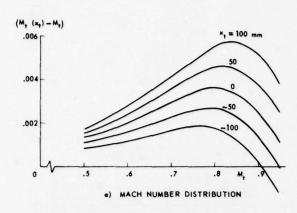


Fig. 2.3 Transonic test section of the NLR pilot tunnel



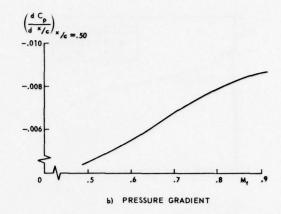


Fig.2.4NLR pilot tunnel empty test section calibration data

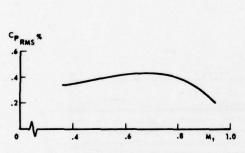


Fig. 2.5 Noise level in NLR pilot tunnel

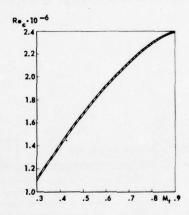


Fig. 2.6 Reynolds number based on chord length as function of

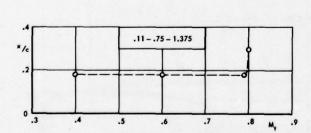


Fig. 2.7 Transition position as a function of Mach number $(\alpha = 0^{\circ})$

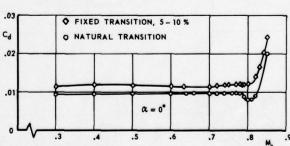


Fig. 2.8 Drag versus Mach number

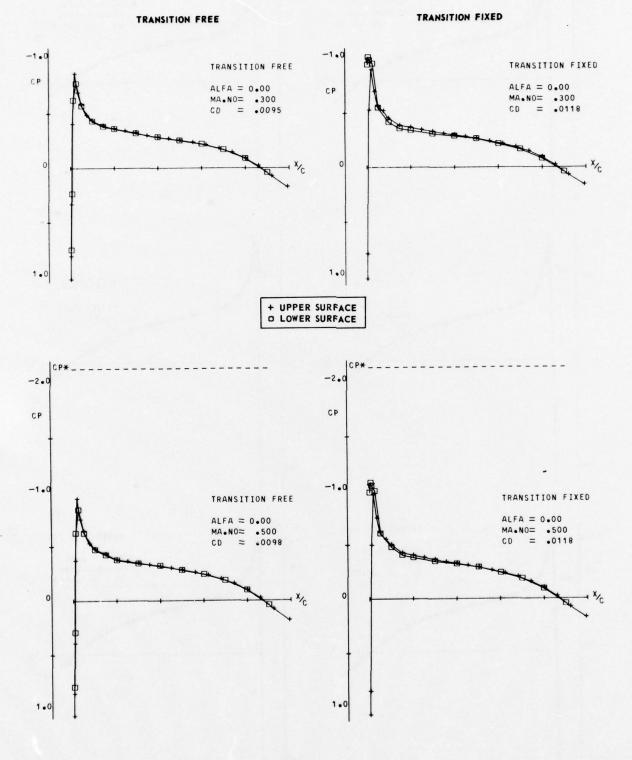


Fig. 2.9 Pressure distributions

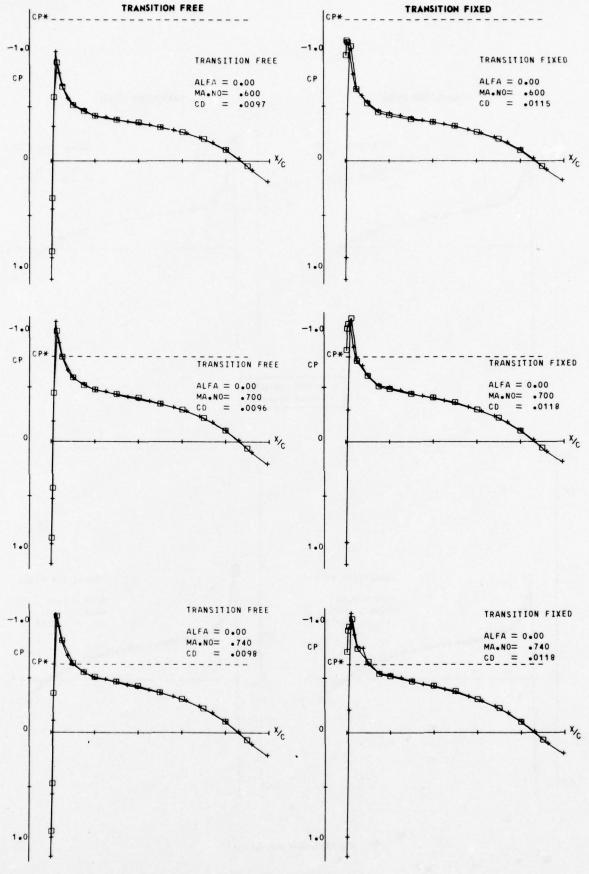


Fig. 2.9 Pressure distributions (con'd)

The complete has been a the day of the complete the second

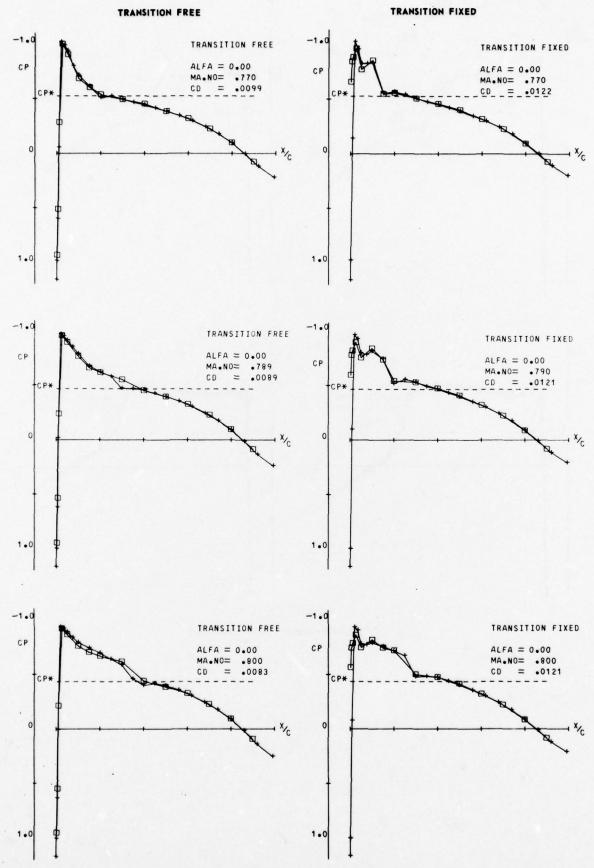


Fig. 2.9 Pressure distributions (con'd)

And the break of the de the state of the sta

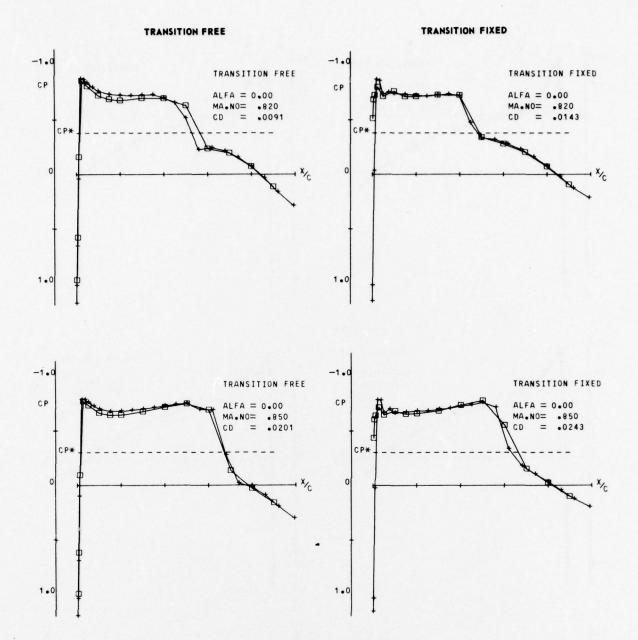


Fig. 2.9 Pressure distributions (concluded)

2.3 DATA SET FROM NAE TUNNEL

- 1.1. Airfoil designation
- 1.2. Type of airfoil
- 1.2.1. airfoil geometry nose radius maximum thickness base thickness
- 1.2.2. design condition

design pressure distribution

- 1.3. Additional remarks
- 1.4. References on airfoil

2. Model geometry

- 2.1. Chord length
- 2.2. Span
- 2.3. Actual model co-ordinates and accuracy
- 2.4. Maximum thickness
- 2.5. Base thickness
- 2.6. Additional remarks
- 2.7. References on model

3. Wind tunnel

- 3.1. Designation
- 3.2. Type of tunnel
 - 3.2.1. stagnation pressure
 - 3.2.2. stagnation temperature 3.2.3. humidity / dew point
- 3.3. Test section
 - 3.3.1. dimensions
 - 3.3.2. type of walls

3.4. Flow field (empty test section)

- 3.4.1. reference static pressure
- 3.4.2. flow angularity 3.4.3. Mach number distribution
- 3.4.4. pressure gradient
 3.4.5. turbulence/noise level
- 3.4.6. side wall boundary layer
- 3.5. Additional remarks
- 3.6. References on wind tunnel

4. Tests

- 4.1. Type of measurements
- 4.2. Tunnel/model dimensions 4.2.1. height/chord ratio 4.2.3. width/chord ratio

NLR QE 0.11-0.75-1.375

symmetrical, "peaky"-type shock-free supercritical designed by means of Nieuwland hodograph method see fig.2.10and tables 2.6, 2.7 R/c = 4.4%t/c = 11.7% zero

potential flow (hodograph theory) $M = 0.786, \alpha = 0$ experiment $M_{t} = 0.789$, $\alpha = 0^{\circ}$

see fig. 2.10 , table 2.6

none

ref. 1.

10 inch (0.254 m)

15 inch (0.381 m)

table 2.7 (theoretical coordinates obtained by spline fit through table 2.6 data), fig. 2.11

t/c = 11.7 %

0.010 inch (0.25 mm)

finite trailing edge (base) thickness obtained by symmetric increase of thickness from 95% - 100% chord

see ref. 2

NAE 5ft x 5ft transonic W/T with 2-d insert blowdown

2 - 11 bars 293°K, max. drop 5° during run $0.0002 \text{ kg H}_20/\text{ kg air}$

figure 2.12

60 x 15 inch perforated;

top and bottom walls 20.5% open \$ 12.7 mm straight holes at 26.4 mm spacing solid sidewalls (except for small porous area around model location)

at sidewall, 7.7 chords upstream of model L.E. $\Delta \alpha = -0.29^{\circ} + 0.02^{\circ}$ figure 2.13

figure 2.13

 $\left(\frac{\Delta p}{q}\right)_{rms} = 0.008$ at M = 0.8

 $\delta^* \approx 2.5 \text{ mm}$, $\frac{2\delta^*}{R} \approx 0.013$

side wall suction applied through porous material around model location with objective to prevent side wall b.l. separation

ref 3, 4

force balance measurements, surface pressures, wake pitot pressures

6.0

1.5

| | 4.3. Flow conditions included in present data base | |
|----|---|--|
| | 4.3.1. angle of attack | 00 |
| | 4.3.2. Mach number | 0.4 to 0.86 |
| | 4.3.3. Reynolds number | ≈ 21 x 10 ⁶ |
| | 4.3.4. transition | free only |
| | - position of free transition | near leading edge; exact position unknown |
| | - transition fixing | n.a. |
| | 4.3.5. temperature equilibrium | yes |
| | 4.4. Additional remarks | |
| | 4.5. References on tests | Ref. 2 |
| 5. | Instrumentation | |
| | 5.1. Surface pressure measurements | |
| | 5.1.1. pressure holes | |
| | - size | 0.51 mm |
| | spanwise station(s)chordwise positions | at mid span; staggered near leading edge see table 2.7 |
| | E 1 2 time of thoughtions and | 48 port Dg Scanivalves + 200 psia Kulite |
| | 5.1.2. type of transducers and scanning devices | VQS - 500-200A pressure transducers |
| | 5.1.3. other | , to - Joo zoon prosbuto transactors |
| | | |
| | 5.2. Wake measurements | |
| | 5.2.1. type/size of instrument(s) | traversing probe, see figure 2.12 diameter outer/inner 1.6/0.51 mm |
| | 5.2.2. stréamwise position(s) | 1.5 chords downstream of T.E |
| | 5.2.3. type of transducers and scanning devices | 25 psid Statham PM 131 TC |
| | 5.3. Boundary layer measurements | none |
| | 5.3.1. type/size of instruments | |
| | 5.3.2. locations | |
| | 5.3.3. type of transducers and | |
| | scanning devices | |
| | 5.4. Skin friction measurements | none |
| | 5.4.1. type/size of instruments | |
| | 5.4.2. locations | |
| | 5.4.3. type of transducer | |
| | 5.5. Flow visualisation | none |
| | 5.5.1. flow field | |
| | 5.5.2 surface flow | |
| | 5.6. other | three-component side-wall balances |
| | 5.7. Additional remarks | |
| |) Add violat iomains | |
| | 5.8. References on instrumentation | ref. 4 |
| 6. | Data | |
| | 6.1. Accuracy (wall interference excluded) | |
| | 6.1.1. angle of attack setting | + 0.02° |
| | | |
| | 6.1.2. free stream Mach number: - setting | + 0.003 |
| | - variation during one pressure | |
| | scan | <u>+</u> 0.003 |
| | 6.1.3. pressure coefficients | |
| | 6.1.4. aerodynamic coefficients | |
| | 6.1.5. boundary layer quantities | n.a. |
| | 6.1.6. repeatability | $\Delta c_n \approx \pm 0.002$, $\Delta c_m \approx \pm 0.0005$ |
| | | Δc ≈ ± 0.0002 subsonic |
| | | dw + 0.0010 transonic |
| | 6.1.7. remarks | |
| | | |

6.2. Wall interference corrections (indicate estimated accuracy)

6.2.1. angle of attack

6.2.2. blockage (solid/wake)

6.2.3. streamline curvature (lift)

6.2.4. other

6.2.5. remarks

6.2.6. references on wall interference correction

 $\Delta \alpha \approx -1.2 c_1$ at M = 0.75

solid/wake blockage negligible,lift-induced blockage $\Delta M \approx -$ 0.012 \mathbf{c}_1 at M = 0.75

values given estimated for P = 1.5 and Plo = 0.5

5,6

6.3. Presentation of data

6.3.1. aerodynamic coefficients

6.3.2. surface pressures 6.3.3. boundary layer quantities

6.3.4. wall interference corrections included?

6.3.5. corrections for model deflection

6.3.6. Empty test section calibration taken into account?

6.3.7. other corrections included?

6.3.8. additional remarks

6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?

6.5. To be contacted for further information on tests

table 2.8 , fig. 2.14 table 2.8 , fig. 2.15

n.a.

angle of attack includes deflection due to side wall support

wake drag data given is the average from two probes about + 0.1c off centerline

Yes. In NLR Pilot Tunnel, but on different model. Included in data base

7. References

1. Boerstoel J.W.

2. Kacprzynski J.J.

3. Ohman L.H.

4. Ohman L.H.

5. Peake D.J. / Bowker A.J.

the state of the destate of the state of the

6. Mokry M. et al

A survey of symmetrical transonic potential flows around quasi-elliptical aerofoil sections NLR TRT. 136, 1967

Wind tunnel tests of a Boerstoel shockless symmetrical airfoil 0.11-0.75-1.375 NAE Report 5X5/0061, 1972 The NAE high Reynolds number 15-ins x 60-ins two-dimensional test facility NRC/NAE LTR-HA-4 1970

The NAE 15-ins x 60 ins two-dimensional test facility; new features and some related observations. Result of new centre line calibration at 20.5% porosity. NRC/NAE LTR-HA-15 1973

A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel NRC/NAE LTR-HA-11 1973

Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC/NAE LR-575 1974

8. List of Symbols

```
8.1. used in text and figures
  В
          width of test section
  c<sub>p</sub>
          pressure coefficient
  c<sub>p</sub>
          critical pressure coefficient
  С
          airfoil chord length
  cd
          drag coefficient
  c1
          lift coefficient
  °m
          pitching moment coefficient (with respect to .25c)
          integer indicating pressure hole number
          maximum local Mach number
          Mach number
          wall porosity factor
  P
          local static pressure
free stream static pressure
  p
  P<sub>∞</sub>
          free stream stagnation pressure
  p<sub>o</sub>
          dynamic pressure
  Rec
          Reynolds number based on chord
 Ro
          leading edge radius
  t
         airfoil maximum thickness
         streamwise coordinate, model origin:L.E
  x
         W/T origin: Balance 2 = 0.4 model x/c airfoil thickness coordinate angle of attack
  subscript
         refers to uncorrected values
  t
8.2. used in data tables
         chord length
  CC
          tangential force coefficient (from balance)
         drag coefficient (from wake measurements)
         c (balance)
  CN
              normal force coefficient (balance)
  M LOC Local Mach number
  P/P0 p/po
  WT ANGLE at
```

| | - | | 4 |
|--|-----|---|---|
| | 3 | 1 | : |
| | ζ | | , |
| | - | ı | |
| | 7 | ī | 7 |
| | ٠ | • | ۰ |
| | • | | 5 |
| | • | ٩ | ı |
| | 216 | | |
| | ų | ٢ | ٦ |
| | r | ٠ | |
| | c | ۲ | ז |
| | | | ٠ |
| | • | | • |
| | | ١ | í |
| | | i | |
| | ٠ | • | 3 |
| | r | ٦ | ٠ |
| | | | : |
| | • | | • |
| | | 1 | |
| | | | |
| | | 1 | 3 |
| | • | | • |
| | • | ÷ | ŝ |
| | 7 | | - |
| | | | |
| | ٠ | ۱ | , |
| | | | 3 |
| | | | |
| | • | ١ | , |
| | ۰ | • | ٦ |
| | | | 4 |
| | | 2 | ż |
| | ě | ī | 5 |
| | | | |

| 0.02264 0.02265 0.00001 0.02264 0.02265 0.00001 0.02349 0.02265 0.00001 0.03369 0.02265 0.00002 0.03369 0.03285 0.00002 0.03369 0.03285 0.00001 0.03369 0.03285 0.00001 0.03369 0.03285 0.00001 0.03369 0.03285 0.00001 0.03376 0.03285 0.00001 0.0326 0.03285 0.00001 0.03276 0.03285 0.00001 0.03276 0.03285 0.00001 0.03276 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0328 0.03285 0.00001 0.0338 0.03285 0.00001 0.0338 0.03285 0.00001 0.0338 0.03285 0.00001 0.0338 0.03285 0.00001 0.0338 0.03385 0.00001 0.0348 0.03495 0.00001 0.0348 0.03495 0.00001 0.0348 0.03495 0.00001 | No. | location X/C | (x/c) | (Z/C)* | (2/C)mod | (Z/C) (Z/C) |
|--|-----|-----------------|--------|---------|----------|-------------|
| 0.002 0.0086000 0.008600 0.0086000 0.0086000 0.0086000 0.0086000 0.0086000 0.00860000000000 | | | mod. | E | | |
| 0.004 0.00510 0.02204 0.02205 0.0000 0.00205 0.02205 0.00205 0.02205 0.02205 0.02205 0.00205 0.02205 0.02205 0.0205 | 7 6 | 00 | | 0 | 1 1 | , |
| 0.006 0.00801 0.02448 0.0245 0.00205 0.0000 0.0010 0.0010 0.00245 0.00205 0.0000 0.0010 0.02485 0.00245 0.0000 0.0011 0.0223 0.00245 0.0000 0.0011 0.0223 0.00245 0.0011 0.0022 0.0011 0.0022 0.0011 0.0022 0.0011 0.0022 0.0011 0.0022 0.0011 0.0022 0.0011 0.0022 0.0011 0.0022 0 | m | 00 | | | | |
| 0.008 0.00800 0.02731 0.02735 0.00205 0.00205 0.0021 0.0021 0.0012 0.001 | 4 | 00 | .0061 | .0220 | 0220 | 0000 |
| 0.011 0.01210 0.02331 0.02345 0.02345 0.00000000000000000000000000000000000 | 2 | 00 | .0080 | . 0248 | 0248 | 0.0000 |
| 0.014 0.0151 0.01815 0.01835 0.01815 0.00000000000000000000000000000000000 | 9 | .01 | .0100 | . 0273 | 0272 | 0,0000 |
| 0.014 0.01590 0.03189 0.03185 0.00000000000000000000000000000000000 | 7 | .01 | .0121 | . 0293 | 0291 | 0.0002 |
| 0.018 | 00 | 0. | 01 39 | .030 | 0305 | 0.0001 |
| Control | 6 | 0. | 9510. | 0320 | 0220 | 0000 |
| 0.022 0.02190 0.01449 0.01319 0.01319 0.0022 0.0224 0.02249 0.02319 0.01319 0.01318 0.0022 0.02249 0.02249 0.02319 0.01318 0.01318 0.0022 0.02249 0.02249 0.02319 0.01318 0.01318 0.02249 0.02 | 10 | 0. | 6/10. | 5550 | 0250 | 0.00 |
| 0.024 | 111 | 0.7 | 1610. | 4276 | 0000 | 000 |
| 0.025 | 77 | 0.0 | 0220 | 0353 | 0353 | 0000 |
| 1,000 1,00 | 13 | 0.0 | 02.59 | 6350 | 0356 | 0000 |
| 0.0280 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.027780 0.0277780 0.0277780 0.0277780 0.0277780 0.0277780 0.0277780 0.02777770 0.0277 | 4 4 | 0.0 | 6470 | 0360 | 0361 | 0000 |
| 0.055 0.0259 0. | 12 | 200 | 0000 | 0367 | 0366 | 000 |
| 0.055 0.054 0.055 0.054 0.055 0.054 0.055 | 17 | 0 0 | 0207 | . 0375 | 0372 | 0003 |
| 0.040 0.0499 0.04016 | 10 | 000 | 0348 | . 0387 | 0388 | 0000 |
| 1,000 0,00 | 0 0 | 00 | 0307 | 0399 | 0400 | 0000 |
| 0.000 0.05599 0.04589 0.04585 0.0000 0.04578 0.04675 0.0000 0.04578 0.04675 | 20 | 0.50 | 0498 | . 0422 | 0422 | 0000 |
| 0.000 0.00 | 210 | 0.0 | 0500 | . 0438 | 0438 | 0.000 |
| 0.100 0.1002 0.00128 0.00595 0.00595 0.00010 | 22 | 080 | 0801 | . 0469 | 0467 | 0.000 |
| 0.120 0.1205 0.1202 0.10597 0.10097 | 23 | 100 | 1002 | .0492 | 0490 | 0.0002 |
| 0.140 0.1400 0.0528 2 0.0555 0.00555 0.00000 0.0000 0.0000 0.0559 0.00000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 24 | 12 | 1202 | .0512 | 0509 | 0.0002 |
| 0.186 | 25 | 14 | 1400 | .0528 | 0526 | 0.0001 |
| 0.200 0.2002 0.2002 0.00532 0.00515 0.0001 0.0001 0.200 0.2002 0.2002 0.2002 0.00545 0 | 26 | 16 | .1603 | .0542 | 0539 | 0.0002 |
| 0.200 0.2013 0.05685 0.05410 0.05686 0.0010 | 27 | 18 | . 1805 | .0553 | 0551 | 0.0001 |
| 0.220 0.24011 0.057709 0.05485 0.00748 | 28 | . 20 | . 2002 | .0563 | 0561 | 0.0002 |
| 0.240 0.25400 0.05880 0.05786 0.05788 0.0001 0.0001 0.2560 0.05887 0.05788 0.0 | 29 | . 22 | . 2201 | .0570 | 0568 | 0.0002 |
| 0.286 0.2866 0.08808 0.0881 0.00818 0. | 30 | . 24 | . 2403 | .0576 | 0574 | 0.0001 |
| 0.280 0.2850 0.08857 0.08815 0.00815 0.00818 0 | 31 | . 26 | . 2596 | .0580 | 0578 | 0.0002 |
| 0.300 0.300 0.00855 0.05855 0.00855 0.00000000000 | 32 | . 28 | . 2800 | .0585 | 0581 | 0.0004 |
| 0.340 0.4400 0.09852 0.00845 0 | 33 | .30 | . 3003 | .0585 | 0583 | 0.0002 |
| 6 0.340 0.4400 0.08850 0.08859 0.008859 | 34 | . 32 | . 3202 | .0585 | 0584 | 0.0000 |
| 0.386 0.38011 0.0847 0.0870 0.00870 0. | 35 | .34 | . 3400 | .0585 | 0583 | 0.0001 |
| 7 7 7 8 8 8 9 9 8 8 9 9 9 9 9 9 9 9 9 9 | 36 | . 36 | .3601 | .0584 | 0582 | 0.0002 |
| 1, 10, 10, 10, 10, 10, 10, 10, 10, 10, | 37 | 38 | .3802 | .0579 | 0579 | 0.0000 |
| 0.500 0.04950 0.05410 0.05513 0.05513 0.00000 0.05510 0.05513 | 200 | . 40 | . 3998 | . 0576 | 0575 | 0.0001 |
| 1,000,000,000,000,000,000,000,000,000,0 | 40 | 200 | 4501 | 1900. | 0000 | 0000 |
| 0.000 0.00 | 7 7 | 2 | 4440 | 000 | 0.00 | 000 |
| 0.655 0.65040 0.04413 0.04414 0.0441 | 4.2 | 9 | 00000 | 0470 | 00.78 | 000 |
| 6 700 0.700 0.7000 0.00938 0.03945 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00 | 4.3 | 9 | 6600 | 0441 | 0440 | 000 |
| 0.750 0.750 0.7890 0.7841 0.7885 0.00000 0.850 0.76000 0.7881 0.02788 0.00000 0.850 0.9500 0.7891 0.02788 0.00000 0.950 0.9500 0.7891 0.02788 0.00000 0.950 0.9500 0.00000 0.00000 0.950 0.9500 0.00000 0.00000 0.950 0.9500 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.000000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.00000 0.9500 0.00000 0.00000 0.000000 0.00000 0.9500 0.00000 0.00000 0.000000 0.00000 | 44 | 7.0 | 2002 | 0203 | 0392 | 0000 |
| 0.800 0.8600 0.7881 0.02785 0.00000 0.00000 0.0000 0.0000 0.00000 0.00000 0.00000 0.0000 0.0000 0.000 | 45 | .75 | 7400 | 0341 | 0338 | 0000 |
| 7 0.850 0.6500 0.0713 0.0268 0.0008 0 | 46 | . 80 | 8000 | 0281 | 0238 | 0000 |
| 0.900 0.9020 0.01377 0.01355 0.0025 0.954 0.09520 0.00596 0.01355 0.00055 0.100 0.00380 0.0174 0.02745 0.00075 0.100 0.1010 0.00428 0.06928 0.00695 3 2.00 0.10980 0.05634 0.05655 0.0000 5 3 0.0000 0.0000 0.05855 0.05655 0.0000 5 5 0 0.0000 0.05000 0.05855 0.05555 0.0000 5 6 0 0.0000 0.05000 0.05855 0.05855 0.0000 5 8 0 0.0000 0.0000 0.05855 0.05859 0.0000 5 8 0 0.0000 0.0000 0.04799 0.0000 5 8 0 0.0000 0.0000 0.04799 0.0000 5 8 0 0.0000 0.0000 0.04799 0.0000 | 47 | 80 | 8500 | 0213 | 020 | 000 |
| 0.950 0.950 0.00594 0.00595 0. | 8 | 90 | 0000 | 0137 | 013 | 0000 |
| 004 0.00380 0.01774 0.01865 0.0001 1.010 0.01010 0.01742 0.02745 0.0001 2.000 0.10030 0.04528 0.04525 0.00001 3.00 0.10030 0.0553 0.05552 0.00001 4.00 0.10015 0.0553 0.05552 0.00001 5.000 0.50040 0.05535 0.05552 0.0001 5.00 0.50040 0.05452 0.05342 0.00101 7.000 0.5002 0.04500 0.04390 0.0001 7.000 0.00025 0.04400 0.04390 0.0001 7.000 0.00025 0.04300 0.00392 0.0001 | 67 | 96 | 9502 | 0000 | 500 | 0000 |
| 100 0.01010 0.01010 0.04928 0.04939 0.0000 0.0000 0.0000 0.00000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0 | 20 | 00 | 0038 | 0177 | 0.0180 | 000 |
| 2 . 100 0.10550 -0.04928 -0.04925 0.00000 3 . 200 0.19980 -0.05634 -0.05625 0.000000 5 . 200 0.40015 -0.05635 -0.05526 0.00001 5 . 500 0.40015 -0.05876 -0.05526 0.0001 7 . 600 0.50040 -0.05402 -0.04790 0.0001 7 . 800 0.60020 -0.05400 -0.04790 0.0001 9 . 800 0.80020 -0.07808 -0.07860 0.0001 | 51 | 0 | 0101 | 0.0274 | 0.0274 | 0000 |
| 3 .200 0.19980 -0.6583 -0.05859 0.0000 300 0.10000 -0.05855 -0.05780 0.0000 5 .500 0.5004 0.05787 -0.05780 0.0000 5 .500 0.6004 0.05480 -0.05780 0.0000 7 .500 0.6002 0.04800 0.04790 0.0000 8 .700 0.00025 -0.04800 0.04790 0.0000 9 .800 0.80025 -0.07806 0.02785 0.0000 | 52 | 2 | 1003 | 0.0492 | 0.049 | .0000 |
| 4 .300 0.3000 -0.5855 -0.05445 0.0001 5 .400 0.4015 -0.0576 -0.65750 0.0001 5 .500 0.50040 -0.05402 -0.05390 0.0001 7 .600 0.60020 -0.04800 -0.04790 0.0001 8 .700 0.70025 -0.04340 -0.04795 9 .800 0.80020 -0.07808 -0.02765 0.0001 | 53 | 20 | 1998 | 0.0563 | 0.056 | .0000 |
| 5 .400 0.4015 -0.5767 -0.57529 0.0001 500 0.50040 -0.05402 -0.04790 0.0001 7 .600 0.60020 -0.04800 -0.44790 0.0001 7 .700 0.7005 -0.7940 -0.64790 0.0001 9 .800 0.80020 -0.07808 -0.2786 0.0004 | 54 | 36 | 3000 | 0.0585 | 0.0584 | . 0001 |
| 50 0.50040 -0.05402 -0.05390 0.0001 7 .600 0.60020 -0.04800 -0.04790 0.0001 8 .700 0.70025 -0.03940 -0.03925 0.0001 9 .800 0.80020 -0.078808 -0.02785 0.0001 | 55 | 40 | 4001 | 0.0576 | 0.057 | .0001 |
| 7 .600 0.60020 -0.04800 -0.04790 0.0001 8 .700 0.70025 -0.03910 0.03925 0.0009 9 .800 0.80020 -0.02808 -0.02765 0.0004 | 99 | 50 | 5004 | 0.0540 | 0.053 | 000 |
| 8 .700 0.70025 -0.03940 -0.03925 0.0001 9 .800 0.80020 -0.02808 -0.02765 0.0004 | 57 | 9 | .6002 | 0.0480 | 0.047 | .0001 |
| 9 .800 0.80020 -0.02808 -0.02765 0.0004 | 28 | 70 | . 7002 | 0.0394 | 0.039 | .0001 |
| | 59 | è | | 4 4 4 4 | | |

0.036819

TABLE 2.7 NAE model geometry and pressure hole locations

TABLE 2.6 Main characteristics of aerofoil section 0.11-0.75-1.375

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 773 SCAN
MACH NUMBER=0.438
REYNOLDS NO.=19.08*10**6
W.T.ANGLE= 0.21 DEG
CN =-0.017
CM = 0.0060
CC = 0.0029
COW= 0.0088

SHOCKLESS SYMMETRICAL AIRFOIL 0.11CO-0.7500-1.375

RUN 775 SCAN
MACH NUMBER=0.518
REYNOLDS NO.=21.81*10**6
W.T.ANGLE= 0.17 DEG
CN =-0.011
CM = 0.0042
CC = 0.0039
CDW= 0.0082 1

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

| x/C | CP | P/PO | M LOC | X/C | CP | P/P0 | M LOC |
|-------|-----------------------|-----------------|---------|-------|---------------------|----------------|-----------|
| | | | | | | | |
| 0.004 | 0.4614 | 0.931 | 0.321 | 0.004 | 0.5127 | C.914 | 0.360 |
| 0.010 | -0.5604 | 0.811 | 0.556 | 0.010 | -0.5529 | 0.749 | 0.656 |
| C.100 | -0.4664 | 0.822 | 0.538 | 0.100 | -0.4963 | 0.757 | 0.643 |
| | -0.3813 | 0.832 | 0.520 | 0.200 | -0.4138 | C.770 | 0.624 |
| 0.200 | | | | | | | |
| 0.300 | -0.3456 | 0.836 | 0.512 | 0.300 | -0.3712 | 0.775 | 0.614 |
| 0.400 | -0.3114 | 0.840 | 0.505 | 0.400 | -0.3302 | 0.781 | 0.605 |
| 0.500 | -0.2727 | 0.844 | 0.498 | 0.500 | -0.2906 | 0.786 | 0.596 |
| 0.600 | -0.2304 | 0.850 | 0.488 | 0.600 | -0.2549 | 0.792 | 0.586 |
| 0.700 | -0.1739 | 0.856 | 0.476 | 0.700 | -0.1894 | 0.802 | 0.570 |
| 0.800 | -0.0856 | 0.866 | 0.457 | 0.800 | -0.0944 | 0.817 | 0.546 |
| 0.900 | 0.0562 | 0.883 | 0.426 | 0.900 | 0.0562 | 0.841 | 0.504 |
| 0.300 | 0.0362 | 0.007 | 0.420 | 0.900 | 0.0362 | 0.041 | 0.304 |
| | PRESSURE DISTRIBUTION | ON ON THE UPPER | SURFACE | | PRESSURE DISTRIBUTI | ON ON THE UPPE | R SURFACE |
| x/c | CP | P/P0 | M LOC | X/C | CP | P/P0 | M LOC |
| */* | | .,.0 | 200 | | | | |
| 0.0 | 1.0535 | 1.001 | | 0.0 | 1.0573 | C.998 | 0.048 |
| 0.032 | 0.7697 | 0.967 | 0.220 | 0.002 | 0.7916 | 0.957 | 0.251 |
| 0.004 | 0.4752 | 0.932 | 0.319 | 0.004 | 0.4871 | C.909 | 0.371 |
| 0.006 | 0.1695 | 0.896 | 0.399 | 0.006 | 0.1695 | 0.858 | 0.472 |
| 0.008 | -0.1784 | 0.855 | 0.479 | 0.008 | -0.1712 | 0.804 | 0.567 |
| 0.010 | -0.5006 | 0.816 | 0.546 | 0.010 | -0.4891 | 0.753 | 0.649 |
| 0.012 | -0.7689 | 0.784 | 0.601 | 0.012 | -0.7927 | 0.706 | 0.724 |
| | -0.8551 | 0.773 | 0.619 | 0.014 | -0.9044 | 0.687 | 0.752 |
| 0.014 | -0.8551 | 0.773 | | 0.014 | -1.0361 | | 0.784 |
| 0.016 | -0.9603 | 0.760 | 0.639 | | | 0.666 | |
| 0.018 | -0.9472 | 0.763 | 0.634 | 0.018 | -1.0245 | 0.667 | 0.784 |
| 0.020 | -C.9167 | 0.768 | 0.625 | 0.020 | -0.9995 | 0.670 | 0.779 |
| 0.022 | -0.8826 | 0.773 | 0.618 | 0.022 | -0.9595 | 0.677 | 0.768 |
| 0.C24 | -0.8590 | C.776 | 0.613 | 0.024 | -0.9126 | 0.686 | 0.754 |
| 0.025 | -0.7793 | 0.785 | 0.598 | 0.025 | -0.8734 | 0.694 | 0.742 |
| 0.026 | -0.7953 | 0.783 | 0.602 | 0.026 | -0.8550 | 0.698 | 0.735 |
| 0.028 | -0.6821 | 0.797 | 0.580 | 0.028 | -0.7784 | 0.713 | 0.713 |
| 0.020 | -0.7629 | 0.789 | 0.592 | 0.030 | -0.7868 | 0.710 | 0.717 |
| 0.035 | -0.6644 | 0.801 | 0.573 | 0.035 | -0.7327 | 0.720 | 0.702 |
| | | 0.801 | | 0.040 | -0.6713 | 0.730 | 0.686 |
| 0.040 | -0.6398 | | 0.569 | | | | |
| 0.050 | -0.5629 | 0.812 | 0.555 | 0.050 | -0.6157 | 0.740 | 0.670 |
| 0.060 | -0.5434 | C.814 | 0.551 | 0.060 | -0.5559 | 0.750 | 0.655 |
| 0.080 | -0.4986 | 0.818 | 0.544 | C.080 | -0.5201 | 0.750 | 0.654 |
| 0.100 | -0.4559 | 0.823 | 0.535 | 0.100 | -0.4791 | 0.758 | 0.643 |
| 0.120 | -0.4263 | 0.827 | 0.528 | 0.120 | -0.4575 | 0.762 | 0.636 |
| 0.140 | -0.4008 | 0.829 | 0.524 | 0.140 | -0.4357 | 0.766 | 0.629 |
| 0.160 | -0.3877 | 0.831 | 0.522 | 0.160 | -0.4193 | 0.769 | 0.624 |
| 0.180 | -0.3777 | 0.832 | 0.519 | 0.180 | -0.4062 | 0.772 | 0.620 |
| | -0.3715 | 0.833 | 0.518 | C.200 | -0.4074 | 0.772 | 0.619 |
| 0.200 | | 0.835 | | 0.220 | -0.3966 | 0.774 | 0.617 |
| C.220 | -0.3602 | 0.835 | 0.515 | | | | |
| 0.240 | -0.3527 | 0.834 | 0.516 | 0.240 | -0.3858 | 0.774 | 0.616 |
| 0.260 | -0.3437 | 0.835 | 0.514 | 0.260 | -0.3737 | C.775 | 0.614 |
| 0.280 | -0.3350 | 0.837 | 0.511 | 0.280 | -0.3556 | 0.776 | 0.613 |
| 0.300 | -0.3309 | 0.837 | 0.511 | 0.300 | -0.3545 | 0.775 | 0.615 |
| 0.320 | -0.3277 | 0.837 | 0.511 | 0.320 | -0.3475 | 0.776 | 0.614 |
| 0.340 | -0.3205 | 0.837 | 0.511 | 0.340 | -0.3367 | 0.778 | 0.610 |
| 0.360 | -0.2938 | 0.840 | 0.506 | 0.360 | -0.3162 | G.780 | 0.606 |
| 0.380 | -0.3079 | 0.838 | 0.509 | C.380 | -0.3251 | 0.779 | 0.608 |
| | | | | 0.400 | -0.3220 | 0.778 | 0.609 |
| 0.400 | -0.3115 | 0.838 | 0.508 | | | | |
| C.450 | -0.2952 | 0.842 | 0.503 | 0.450 | -0.3090 | C.780 | 0.607 |
| 0.500 | -0.2719 | 0.845 | 0.497 | 0.500 | -0.2880 | 0.784 | 0.601 |
| 0.550 | -0.2464 | C.848 | 0.491 | 0.550 | -0.2563 | 0.790 | 0.590 |
| 0.600 | -0.2251 | 0.850 | 0.487 | 0.600 | -0.2358 | 0.794 | 0.584 |
| 0.650 | -0.2034 | 0.853 | 0.483 | 0.650 | -0.2166 | 0.799 | 0.576 |
| 0.700 | -0.1781 | 0.856 | 0.477 | 0.700 | -0.1790 | 0.806 | 0.564 |
| 0.750 | -0.1493 | 0.860 | 0.469 | 0.750 | -0.1457 | 0.810 | 0.557 |
| | | | | C.800 | | 0.820 | 0.541 |
| 0.800 | -0.0908 | 0.867 | 0.455 | | -0.0907 | 0.020 | |
| 0.850 | -0.0253 | 0.875 | 0.442 | 0.850 | -0.0358 | 0.829 | 0.525 |
| 0.900 | 0.0489 | 0.883 | 0.425 | 0.900 | 0.0488 | 0.843 | 0.500 |
| 0.950 | 0.1528 | 0.895 | 0.401 | 0.950 | 0.1602 | 0.860 | 0.469 |
| | | | | | | | |

TABLE 2.8 Force data and surface pressure distributions

And the second s

| | RUN 776 MACH NUMBER=0. REVNOLDS NO.=2 W.T.ANGLE= 0. CN =-0.009 CM = 0.0033 CC = 0.0037 CDW= 0.0086 | 1.46*10**6 | | | RUN 777 MACH NUMBER=0.631 REYNOLDS NO.=21.97 W.T.ANGLE= 0.20 D CN =-0.012 CM = 0.0027 CC = 0.0041 CDW=****** | | |
|---|---|---|---|--|--|---|---|
| PRESS | URE DISTRIBUTION E | IN THE LOWER SUR | RFACE | PR | ESSURE DISTRIBUTION | ON THE LOWER SU | RFACE |
| ×/ c | СР | P/P0 | M LOC | x/c- | СР | P/P0 | M LOC |
| 0.004 0.010 0.100 0.200 0.300 0.400 0.500 0.600 0.700 0.800 0.900 | 0.5518 -0.4566 -0.4994 -0.4200 -0.3759 -0.3393 -0.22953 -0.2572 -0.1944 -0.0964 0.0608 | 0.903 0.720 0.712 0.727 0.736 0.743 0.750 0.758 0.778 0.7787 | 0.384 0.702 0.714 0.690 0.677 0.666 0.655 0.642 0.623 0.596 0.549 | 0.004 0.010 0.100 0.200 0.300 0.400 0.500 0.600 0.700 0.800 | 0.5836 -0.4335 -0.5497 -0.4587 -0.4075 -0.3631 -0.3245 -0.2705 -0.2036 -0.1002 0.0706 | 0.890 0.674 0.648 0.667 0.678 0.688 0.696 0.708 0.722 0.744 0.779 | 0.412 0.773 0.812 0.783 0.766 0.752 0.739 0.721 0.699 0.665 |
| PR | ESSURE DISTRIBUTION | ON ON THE UPPER | SURFACE | | PRESSURE DISTRIBUTI | ION ON THE UPPER | SURFACE |
| x/c | CP | P/P0 | M LOC | x/c | CP | P/P0 | M LOC |
| C.0 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.018 0.022 0.024 0.025 0.026 0.028 0.035 0.040 0.050 0.060 0.080 0.100 0.120 0.120 0.140 0.180 0.220 0.220 0.224 | 1.0853 0.8088 0.5042 0.1791 -0.1468 -0.4936 -0.7949 -0.9179 -1.0661 -1.0891 -1.0299 -0.9889 -0.9317 -0.9099 -0.8959 -0.8440 -0.8529 -0.7493 -0.7106 -0.6659 -0.6557 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 -0.4968 -0.4755 | 1.000 0.949 0.893 0.834 0.774 0.710 0.655 0.6633 0.606 0.602 0.615 0.624 0.635 0.6640 0.644 0.656 0.656 0.656 0.669 0.682 0.698 0.705 0.714 0.718 0.720 0.724 0.725 0.726 0.725 | 0.273 0.405 0.516 0.616 0.616 0.717 0.802 0.836 0.878 0.883 0.825 0.819 0.801 0.800 0.781 0.760 0.748 0.735 0.725 0.711 0.705 0.701 0.695 0.693 0.692 | 0.00 0.002 0.004 0.016 0.018 0.022 0.024 0.025 0.028 0.035 0.040 0.050 0.080 0.100 0.120 0.140 0.180 0.200 0.224 | 1.1211 0.8523 0.5614 0.2342 -0.0673 -0.4291 -0.7553 -0.9222 -1.1184 -1.1301 -1.0693 -1.0383 -0.9870 -0.9785 -0.9510 -0.9306 -0.8935 -0.8599 -0.7664 -0.7052 -0.6415 -0.5270 -0.5270 -0.5017 -0.4766 -0.4640 -0.4539 -0.44333 -0.4294 | 1.004 0.947 0.885 0.815 0.751 0.674 0.603 0.566 0.523 0.520 0.534 0.540 0.550 0.552 0.558 0.561 0.572 0.621 0.630 0.640 0.653 0.667 0.669 0.671 | 0.281 0.422 0.549 0.654 0.773 0.882 0.940 1.009 1.014 0.992 0.981 0.966 0.963 0.953 0.947 0.931 0.913 0.883 0.855 0.840 0.826 0.806 0.797 0.789 0.784 0.780 0.777 |
| 0.260 0.280 0.320 0.340 0.340 0.380 0.400 0.450 0.550 0.600 0.650 0.750 0.850 0.850 0.900 0.950 | -0.3776 -0.3764 -0.3766 -0.3766 -0.3766 -0.3560 -0.3374 -0.3399 -0.3425 -0.3244 -0.2994 -0.2754 -0.2517 -0.2234 -0.1918 -0.1584 -0.0296 0.0555 | 0.731 0.732 0.732 0.733 0.736 0.739 0.739 0.739 0.743 0.744 0.756 0.756 0.775 0.775 0.775 0.775 0.772 0.780 0.781 0.803 0.818 | 0.684 0.683 0.683 0.681 0.678 0.672 0.672 0.665 0.657 0.649 0.641 0.631 0.607 0.589 0.569 | 0.240 0.260 0.300 0.320 0.340 0.380 0.400 0.550 0.500 0.550 0.650 0.650 0.650 0.650 0.650 0.650 | -0.4(34) -0.4(29) -0.4(05) -0.3961 -0.3800 -0.3653 -0.3680 -0.3628 -0.3172 -0.3172 -0.2854 -0.2645 -0.2362 -0.2025 -0.1562 -0.0315 0.0616 0.1807 | 0.678 0.679 0.680 0.681 0.083 0.685 0.685 0.689 0.995 0.701 0.705 0.711 0.718 0.730 0.761 0.782 0.805 | 0.767 0.765 0.764 0.762 0.758 0.755 0.758 0.756 0.740 0.731 0.724 0.715 0.687 0.662 0.637 0.664 0.566 |

TABLE 2.8 Force data and surface pressure distributions (con'd)

W M MT ...

X/C

RUN 779 SCAN 1
MACH NUMBER=0.691
REYNOLDS NO.=21.14*10**6
W.T.ANGLE= 0.18 DEG
CN =-0.013
CM = 0.0020
CC = 0.0046
CDW= 0.0082

RUN 780 SCAN 1
MACH NUMBER=0.736
REYNOLDS NO.=21.94*10**6
W.T.ANGLE= 0.17 DEG
CN =-0.015
CM = 0.0017
CC = 0.0054
COW= 0.0086

| DDECCHOE | DISTRIBUTION | DN THE | LOHED | CHDEACE |
|----------|--------------|--------|-------|---------|
| | | | | |

P/PO

CP

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

CP P/PO M LOC

| */6 | CP. | P/P0 | M LUC | *** | CP | P/P0 | M LUC |
|-------|----------------------|----------------|---------|----------------|-----------------------|-----------------|---------|
| | | | | | | | |
| 0.004 | 0.6434 | 0.883 | 0.420 | 0.004 | 0 (710 | 4 477 | 0. 420 |
| 0.010 | -0.3296 | 0.648 | 0.810 | 0.004 | 0.6789 | 0.877 | 0.430 |
| | | 0.585 | | | -0.2385 | 0.635 | 0.830 |
| 0.100 | -0.5883 | 0.585 | 0.910 | 0.100 | -0.6281 | 0.532 | 0.990 |
| 0.200 | -0.5016 | 0.605 | 0.370 | 0.200 | -0.5444 | 0.554 | 0.950 |
| 0.300 | -0.4411 | 0.619 | 0.850 | 0.300 | -0.4769 | 0.572 | C.930 |
| 0.400 | -0.3987 | 0.630 | 0.840 | 0.400 | -0.4199 | 0.587 | 0.900 |
| 0.500 | -0.3468 | 0.642 | 0.820 | C.500 | -0.3659 | 0.601 | 0.880 |
| 0.600 | -0.2873 | 0.655 | 0.800 | 0.600 | -0.3008 | 0.619 | 0.850 |
| 0.700 | -0.2118 | 0.674 | 0.770 | C.700 | -0.2162 | 0.641 | 0.820 |
| C.800 | -0.1011 | 0.701 | 0.730 | 0.800 | -0.0971 | 0.673 | 0.770 |
| 0.900 | 0.0761 | 0.744 | 0.664 | 0.900 | 0.0891 | 0.722 | 0.699 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | PRESSURE DISTRIBUTIO | N ON THE UPPER | SURFACE | 1000 | PRESSURE DISTRIBUTION | ON ON THE UPPER | SURFACE |
| | | | | | | | |
| X/C | CP | P/PO | M LOC | X/C | CP | P/P0 | M LOC |
| | | | | | | | |
| | | | | | | | |
| 0.0 | 1.1235 | 1.000 | 0.020 | 0.0 | 1.1478 | 1.001 | |
| 0.002 | 0.8664 | 0.937 | 0.300 | 0.002 | 0.9110 | 0.939 | 0.300 |
| 0.004 | 0.6119 | 0.875 | 0.440 | 0.004 | 0.6442 | 0.868 | 0.450 |
| 0.006 | 0.3061 | 0.800 | 0.570 | 3.006 | 0.3716 | 0.796 | 0.580 |
| 0.008 | -0.0104 | 0.723 | 0.690 | 0.008 | 0.0920 | 0.721 | 0.700 |
| 0.010 | -0.3326 | 0.645 | 0.810 | 0.010 | -0.2187 | C.639 | 0.820 |
| 0.012 | -0.6437 | 0.568 | 0.930 | 0.012 | -3.5170 | 0.559 | 0.950 |
| 0.014 | -0.8090 | 0.527 | 1.000 | 0.014 | -0.6886 | 0.512 | 1.020 |
| 0.016 | -1.0848 | 0.459 | 1.110 | 0.016 | -0.9537 | 0.443 | 1.140 |
| 0.018 | -1.2154 | 0.427 | 1.170 | 0.018 | -1.0864 | 0.409 | 1.200 |
| 0.020 | -1.2481 | 0.420 | 1.180 | 0.020 | -1.1300 | 0.396 | 1.230 |
| 0.022 | | 0.421 | | 0.022 | -1.1569 | 0.388 | 1.240 |
| | -1.2492 | 0.421 | 1.180 | 0.024 | -1.1363 | | 1.230 |
| 0.024 | -1.1228 | 0.452 | 1.120 | | -1.1351 | 0.393 | 1.230 |
| 0.025 | -1.0862 | 0.463 | 1.110 | 0.025 | -1.1595 | 0.388 | 1.240 |
| 0.026 | -0.9878 | 0.487 | 1.060 | 0.026 | -1.1398 | 0.394 | 1.230 |
| 0.028 | -0.8704 | 0.515 | 1.020 | 0.028 | -1.1128 | 0.403 | 1.210 |
| 0.030 | -0.8732 | 0.514 | 1.020 | 0.030 | -1.1127 | 0.403 | 1.210 |
| 0.035 | -0.8561 | 0.518 | 1.010 | 0.035 | -1.0577 | 0.418 | 1.190 |
| 0.040 | -0.8187 | U.530 | 0.990 | 0.040 | -0.9971 | 0.435 | 1.160 |
| 0.050 | -0.7532 | 0.547 | 0.970 | 0.050 | -0.7329 | 0.506 | 1.030 |
| 0.060 | -0.6895 | 0.566 | 0.940 | 0.060 | -0.6766 | 0.524 | 1.000 |
| 0.080 | -0.6300 | 0.573 | 0.430 | 0.080 | -0.6854 | 0.517 | 1.010 |
| 0.100 | -0.5693 | 0.588 | 0.900 | 0.100 | -0.6014 | 0.539 | 0.980 |
| 0.120 | -0.5346 | 0.597 | 0.890 | 0.120 | -0.5725 | 0.547 | 0.970 |
| 0.140 | -0.5151 | 0.602 | 0.880 | 0.140 | -0.5508 | 0.552 | 0.960 |
| 0.160 | -0.4976 | 0.607 | 0.870 | 0.160 | -0.5411 | 0.555 | 0.950 |
| 0.180 | -0.4852 | 0.610 | 0.870 | 0.180 | -0.5251 | 0.559 | 0.950 |
| 0.200 | -0.4813 | 0.611 | C.870 | 0.200 | -0.5162 | 0.561 | 0.940 |
| 0.220 | -0.4621 | 0.616 | 0.860 | 0.220 | -0.4909 | 0.568 | 0.930 |
| 0.240 | -0.4570 | 0.615 | C. 860 | C.240 | -0.4990 | 0.566 | 0.940 |
| 0.260 | -0.4450 | 0.618 | 0.850 | 0.260 | -0.4848 | 0.569 | 0.930 |
| 0.280 | -0.4334 | 0.620 | 0.850 | 0.280 | -0.4689 | 0.573 | 0.920 |
| 0.300 | -0.4253 | 0.622 | | 0.300 | -0.4590 | | 0.920 |
| | -0.4255 | 0.622 | 0.850 | | | 0.575 | 0.920 |
| 0.320 | -0.4248 | 0.622 | 0.850 | 0.320 | -0.4511 | 0.578 | 0.920 |
| 0.340 | -0.4034 | 0.627 | 0.840 | 0.340 | -0.4342 | 0.581 | 0.910 |
| 0.360 | -0.3901 | 0.630 | 0.840 | 0.360 | -0.4154 | 0.585 | 0.910 |
| C.380 | -0.3946 | 0.628 | 0.840 | 0.380 | -0.4203 | 0.584 | 0.910 |
| 0.400 | -0.3888 | 0.629 | 0.840 | C.400 | -0.4198 | 0.585 | 0.910 |
| 0.450 | -0.3665 | 0.635 | 0.830 | 0.450 | -0.3978 | 0.591 | 0.900 |
| 0.500 | -0.3396 | 0.643 | C.820 | 0.500 | -0.3545 | 0.601 | 0.880 |
| 0.550 | -0.3045 | 0.651 | C.800 | 0.550 | -0.3202 | 0.610 | 0.870 |
| 0.600 | -0.2797 | 0.659 | 0.790 | 0.600 | -0.2939 | 0.618 | 0.850 |
| 0.650 | -0.2466 | 0.667 | 0.780 | 0.650 | -0.2601 | 0.627 | 0.840 |
| 0.700 | -0.2076 | 0.676 | 0.760 | C.700 0.750 | -0.2181 | 0.639 | 0.820 |
| 0.750 | -0.1582 | 0.688 | 0.750 | 0.750 | -0.1586 | 0.655 | 0.800 |
| 0.800 | -0.0921 | 0.704 | 0.720 | 0.800 | -0.0901 | 0.674 | 0.770 |
| 0.850 | -0.0178 | 0.723 | 0.690 | 0.850 | -0.0114 | 0.695 | 0.740 |
| 0.900 | 0.0762 | 0.748 | 0.650 | 0.900 | 0.0792 | 0.720 | 0.700 |
| 0.950 | 0.1886 | 0.776 | | 0.950 | 0.1970 | 0.753 | 0.650 |
| 0.950 | 0.1000 | 0.776 | 0.010 | 0. 450 | 0.1970 | 0.133 | 0.650 |

M LOC X/C

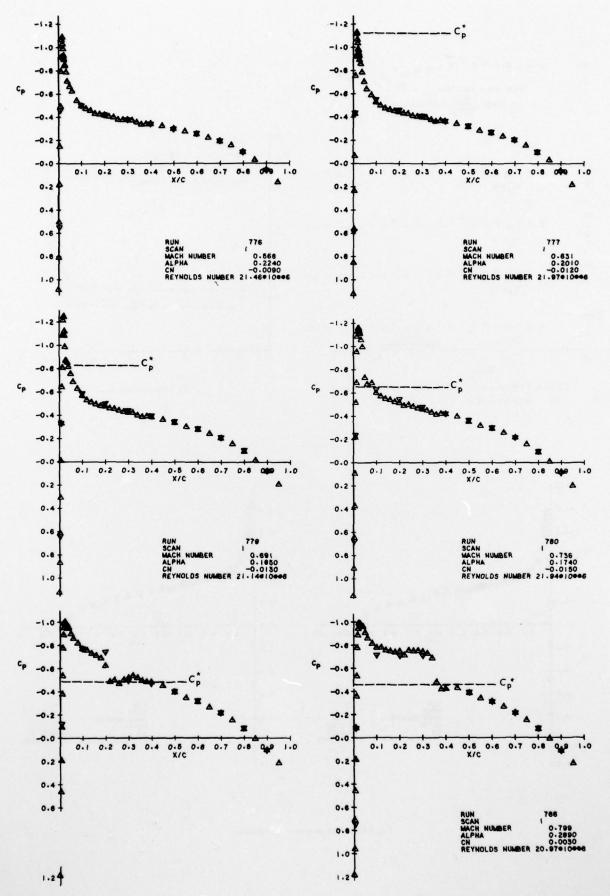


Fig. 2.15 Surface pressure distributions (con'd)

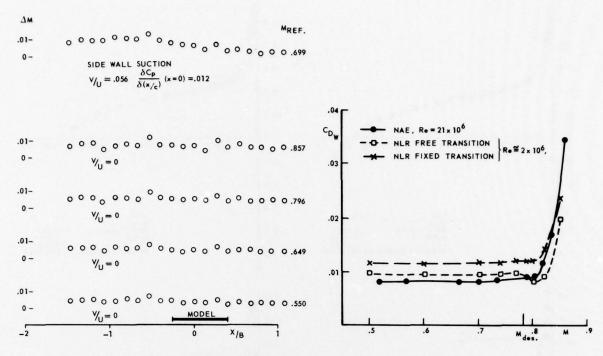
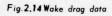


Fig. 2.13 & Mach number distribution, empty test section NAE 15 in x 60 in 2-D insert



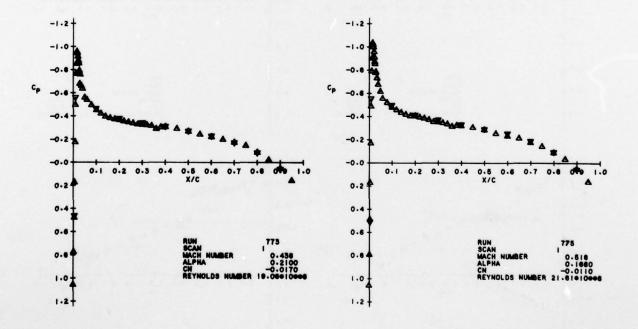


Fig. 2.15 Surface pressure distributions

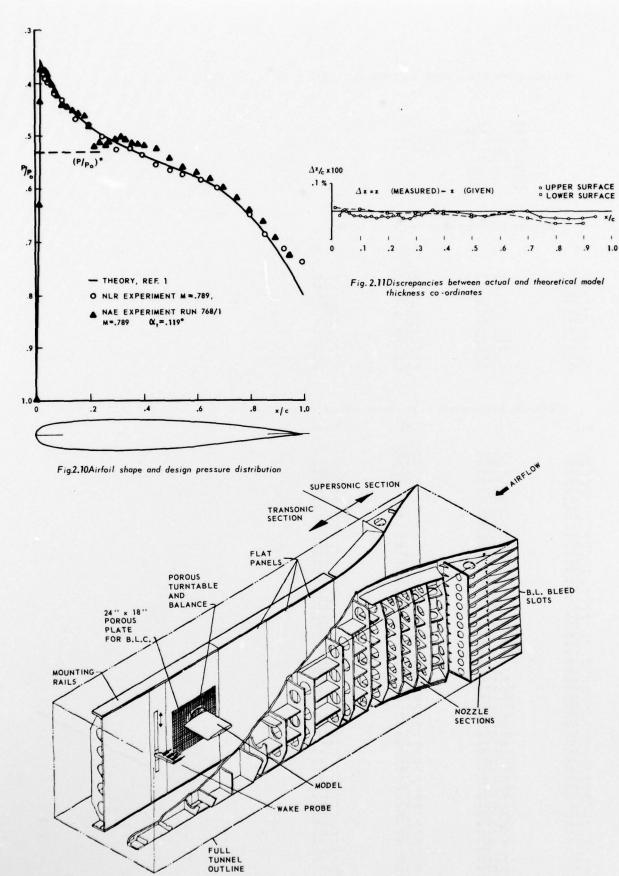


Fig. 2.12 The NAE 15 in x 20 in 2-D insert

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 782 SCAN 1
MACH NUMBER=0.862
REYNOLDS NO.=21.27*10**6
W.T.ANGLE= 0.17 DEG
CN =-0.005
CM = 0.0011
CC = 0.0361
CDW= 0.0343

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

| X/C | CP | P/P0 | M LOC |
|-------|---------|-------|-------|
| | | | |
| 0.004 | 0.8069 | 0.874 | 0.443 |
| 0.010 | 0.0344 | 0.627 | 0.845 |
| 0.100 | -0.6167 | 0.419 | 1.188 |
| 0.200 | -0.6440 | 0.411 | 1.202 |
| 0.300 | -0.7050 | 0.393 | 1.237 |
| 0.400 | -0.7544 | 0.377 | 1.268 |
| 0.500 | -0.7156 | 0.390 | 1.243 |
| 0.600 | -0.7732 | 0.372 | 1.278 |
| 0.700 | -0.3242 | 0.516 | 1.020 |
| 0.800 | -0.0335 | 0.609 | 0.873 |
| 0.900 | 0.1391 | 0.664 | 0.788 |

. PRESSURE DISTRIBUTION ON THE UPPER SURFACE

| x/c | CP | P/PO | M LUC |
|-------|-----------|-------|-------|
| | | | |
| 0.0 | 1.2087 | 1.002 | 0 211 |
| 0.002 | 1.0015 | 0.935 | 0.311 |
| 0.004 | 0.7867 | 0.865 | 0.459 |
| 0.006 | 0.5549 | 0.790 | 0.590 |
| 0.008 | 0.3092 | 0.711 | 0.716 |
| 0.010 | 0.0520 | 0.627 | 0.845 |
| 0.012 | -0.2115 | 0.542 | 0.978 |
| 0.014 | -0.3642 | 0.493 | 1.058 |
| 0.016 | -0.5691 | 0.427 | 1.174 |
| 0.018 | -0.6669 | 0.396 | 1.232 |
| 0.020 | -0.7207 | 0.378 | 1.265 |
| 0.022 | -0.7566 | 0.367 | 1.288 |
| 0.024 | -0.7568 | 0.369 | 1.285 |
| 0.025 | -0.7694 | 0.366 | 1.290 |
| 0.026 | -0.7744 | 0.366 | 1.291 |
| 0.028 | -0.7625 | 0.370 | 1.282 |
| 0.030 | -0.7769 | 0.367 | 1.289 |
| 0.035 | -0.7629 | 0.372 | 1.278 |
| 0.040 | -0.7594 | 0.376 | 1.269 |
| 0.050 | -0.7456 | 0.384 | 1.254 |
| 0.060 | -0.7056 | 0.398 | 1.227 |
| 0.080 | -0.6752 | 0.403 | 1.218 |
| 0.100 | -0.6555 | 0.409 | 1.207 |
| 0.120 | -0.6570 | 0.408 | 1.208 |
| 0.140 | -0.6438 | 0.412 | 1.202 |
| 0.160 | -0.6401 | 0.412 | 1.202 |
| 0.180 | -0.6360 | 0.412 | 1.201 |
| 0.200 | -0.6397 | 0.410 | 1.205 |
| 0.220 | -0.6122 | 0.417 | 1.192 |
| 0.240 | -C - 6534 | 0.401 | 1.222 |
| 0.260 | -0.6583 | 0.398 | 1.227 |
| 0.280 | -0.6660 | 0.396 | 1.232 |
| 0.300 | -0.6696 | 0.394 | 1.235 |
| 0.320 | -0.6770 | 0.391 | 1.240 |
| 0.340 | -0.6878 | 0.388 | 1.247 |
| 0.360 | -0.6914 | 0.387 | 1.248 |
| 0.380 | -0.7095 | 0.381 | 1.260 |
| 0.400 | -0.7231 | 0.378 | 1.267 |
| 0.450 | -0.7409 | 0.372 | 1.279 |
| 0.500 | -0.6746 | 0.394 | 1.236 |
| 0.550 | -0.7100 | 0.384 | 1.255 |
| 0.600 | -0.7544 | 0.371 | 1.280 |
| 0.650 | -0.7790 | 0.364 | 1.295 |
| 0.700 | -0.5171 | 0.449 | 1.134 |
| 0.750 | -0.1770 | 0.559 | 0.951 |
| 0.800 | -0.0661 | 0.595 | 0.894 |
| 0.850 | 0.0296 | 0.628 | 0.844 |
| 0.900 | 0.1290 | 0.661 | 0.792 |
| 0.950 | 0.2190 | 0.691 | 0.747 |

TABLE 2.8 Force data and surface pressure distributions (concluded)

X/C

RUN 760 SCAN
MACH NUMBER=0.815
REYNOLDS NO.=21.20*10*=6
W.T.ANGLE= 0.10 DEG
CN =-0.019
CM = 0.0029
CC = 0.0094
CDW= 0.0134

RUN 7H1 SCAN
MACH NIMBER=0.834
REYNOLDS NO.=20.97*10**6
W.T.ANGLE= 0.23 DEG
CN =-0.003
CM = 0.0023
CC = 0.0157
CDW= 0.0171

| DOCCCHIDE | DISTRIBUTION | ON THE | IMMED | CUDE ACE |
|-----------|--------------|--------|-------|----------|
| | | | | |

and the break the de posterior spreaking

CP

P/PO

H LOC

X/C

| PRESSURE | DISTRIBUTION | ON THE | LOWER | SURFACE |
|----------|--------------|--------|-------|---------|
| | CP | P/P0 | | H LOC |
| | | | | |

| 0.004 | 0.7616 | 0.874 | 0.443 | 0.004 | 0.7760 | 0.874 | 0.443 |
|-------|-----------------------|-----------------|---------|-------|---------------------|----------------|-----------|
| 0.010 | -0.0525 | 0.628 | 0.844 | 0.010 | -0.0248 | 0.627 | 0.845 |
| 0.100 | -0.7105 | 0.429 | 1.170 | 0.100 | -0.6793 | 0.426 | 1.176 |
| 0.200 | -0.7241 | 0.426 | 1.176 | 0.200 | -0.6914 | 0.421 | 1.185 |
| | -0.7646 | 0.415 | 1.196 | | | | |
| 0.300 | | | 1.185 | 0.300 | -0.7420 | 0.404 | 1.216 |
| 0.400 | -0.7498 | 0.421 | | 0.400 | -0.7865 | 0.390 | 1.243 |
| 0.500 | -0.3670 | 0.536 | 0.988 | 0.500 | -0.7350 | 0.406 | 1.213 |
| 0.600 | -0.2692 | 0.566 | 0.940 | 0.600 | -0.6704 | 0.425 | 1.177 |
| 0.700 | -0.1982 | 0.588 | 0.906 | 0.700 | -0.1289 | 0.593 | 0.898 |
| 0.800 | -0.0709 | 0.626 | 0.847 | 0.800 | -0.0153 | 0.627 | 0.845 |
| 0.900 | C.1218 | 0.683 | 0.758 | 0.900 | 0.1451 | 0.676 | 0.770 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | PRESSURE DISTRIBUTI | ON ON THE UPPER | SURFACE | | PRESSURE DISTRIBUTE | ON ON THE HOPE | SURFACE |
| | THE ISSUE OF STATEOTT | 0 0 | 30 | | PRESSORE DISTRIBUTE | ON ON THE OFFE | N JON ACE |
| X/C | CP | P/P0 | M LOC | x/c | CP | P/P0 | M LOC |
| *** | Cr. | F/F0 | in Loc | */- | Cr | FIFO | H COC |
| | | | | | | | |
| | | | | | | | |
| 0.0 | 1.1930 | 1.004 | | 0.0 | 1.1893 | 1.001 | |
| 0.002 | 0.9707 | 0.936 | 0.308 | 0.002 | 0.9633 | 0.932 | 0.319 |
| 0.004 | 0.7316 | 0.864 | 0.463 | 0.004 | 0.7319 | 0.861 | 0.468 |
| 0.006 | 0.4869 | 0.790 | 0.591 | 0.006 | 0.4949 | 0.788 | 0.594 |
| 0.008 | 0.2330 | 0.713 | 0.713 | 0.008 | 0.2491 | 0.712 | 0.715 |
| 0.010 | -0.0421 | 0.630 | 0.841 | 0.010 | -0.0064 | 0.632 | 0.837 |
| 0.012 | -0.3087 | 0.549 | 0.967 | 0.012 | -0.2774 | 0.549 | 0.968 |
| 0.014 | -0.4729 | 0.499 | 1.049 | 0.014 | -0.4501 | 0.495 | 1.056 |
| 0.016 | -0.7102 | 0.427 | 1.174 | 0.016 | -0.6627 | 0.428 | 1.172 |
| 0.018 | -0.8120 | 0.397 | 1.230 | 0.018 | -0.7713 | 0.395 | 1.234 |
| 0.020 | -0.8718 | 0.380 | 1.262 | 0.020 | -0.8308 | 0.376 | 1.270 |
| | -0.9204 | 0.368 | 1.287 | 0.022 | | 0.366 | 1.291 |
| 9.022 | | | | | -0.8615 | | |
| 0.024 | -0.9307 | 0.368 | 1.287 | 0.024 | -0.8501 | 0.369 | 1.285 |
| 0.025 | -0.9350 | 0.368 | 1.287 | 0.025 | -0.8521 | 0.368 | 1.287 |
| 0.026 | -0.9378 | 0.368 | 1.287 | 0.026 | -0.8502 | 0.368 | 1.285 |
| 0.028 | -0.9307 | 0.371 | 1.281 | 0.028 | -0.8564 | 0.368 | 1.287 |
| 0.030 | -0.9292 | 0.373 | 1.276 | 0.030 | -0.8517 | 0.369 | 1.284 |
| 0.035 | -0.9168 | 0.378 | 1.265 | 0.035 | -0.8359 | 0.375 | 1.273 |
| 0.040 | -0.9232 | 0.378 | 1.265 | 0.040 | -0.8292 | 0.376 | 1.270 |
| 0.050 | -0.8717 | 0.395 | 1.233 | 0.050 | -0.7999 | 0.385 | 1.252 |
| 0.060 | -0.8076 | 0.416 | 1.193 | 0.060 | -0.7640 | 0.398 | 1.227 |
| 0.080 | -0.7827 | 0.411 | 1.203 | 0.080 | -0.7624 | 0.397 | 1.229 |
| 0.100 | -0.7453 | 0.422 | 1.182 | 0.100 | -0.7275 | 0.408 | 1.208 |
| 0.120 | -0.7376 | 0.423 | 1.181 | 0.120 | -0.7232 | 0.410 | 1.205 |
| 0.140 | -0.7193 | 0.427 | 1.174 | 0.140 | -0.7038 | 0.417 | 1.192 |
| 0.160 | -0.7191 | 0.427 | 1.174 | 0.160 | -0.7072 | 0.417 | 1.192 |
| 0.180 | -0.7228 | 0.425 | 1.177 | 0.180 | -0.7089 | 0.417 | 1.193 |
| 0.200 | -0.7264 | 0.424 | 1.179 | 0.200 | -0.7134 | 0.415 | 1.196 |
| 0.220 | -0.6852 | 0.436 | 1.158 | 0.220 | -0.6933 | 0.422 | 1.182 |
| | | | | | | | |
| 0.240 | -0.7334 | 0.420 | 1.187 | 0.240 | -0.7339 | 0.411 | 1.203 |
| 0.260 | -0.7372 | 0.418 | 1.190 | 0.560 | -0.7374 | 0.410 | 1.206 |
| 0.280 | -0.7386 | 0.418 | 1.191 | 0.280 | -0.7358 | 0.410 | 1.206 |
| 0.300 | -0.7512 | 0.414 | 1.197 | 0.300 | -0.7380 | 0.408 | 1.209 |
| 0.320 | -0.7588 | 0.413 | 1.500 | 0.320 | -0.7421 | 0.405 | 1.214 |
| 0.340 | -0.7579 | 0.413 | 1.200 | 0.340 | -0.7640 | 0.398 | 1.227 |
| 0.360 | -0.7526 | 0.414 | 1.198 | 0.360 | -0.7591 | 0.400 | 1.225 |
| 0.380 | -0.7468 | 0.416 | 1.194 | 0.380 | -0.7698 | 0.395 | 1.233 |
| 0.400 | -0.7015 | 0.430 | 1.168 | 0.400 | -0.7753 | 0.393 | 1.237 |
| 0.450 | -0.6735 | 0.440 | 1.150 | 0.450 | -0.7284 | 0.408 | 1.209 |
| 0.500 | -0.4312 | 0.515 | 1.023 | 0.500 | -0.7191 | 0.410 | 1.205 |
| 0.550 | -0.7905 | 0.559 | 0.950 | 0.550 | -0.7486 | 0.400 | 1.223 |
| 0.600 | -0.2875 | 0.562 | 0.947 | 0.600 | -0.5322 | 0.467 | 1.103 |
| 0.650 | -0.2585 | 0.571 | 0.933 | 0.650 | -0.1809 | 0.576 | 0.925 |
| 0.700 | -0.2113 | 0.586 | 0.909 | 0.700 | -0.1218 | 0.595 | 0.895 |
| 0.750 | -0.1492 | 0.606 | 0.878 | 0.750 | -0.0792 | 0.608 | 0.874 |
| 0.800 | -0.0729 | 0.629 | 0.842 | 0.800 | -0.0209 | 0.627 | 0.845 |
| | | | | | | | |
| 0.850 | 0.0129 | 0.656 | 0.800 | 0.850 | 0.0574 | 0.650 | 0.809 |
| 0.900 | 0.1131 | 0.687 | 0.754 | 0.900 | 0.1460 | 0.678 | 0.767 |
| 0.950 | 0.2222 | 0.720 | 0.702 | 0.950 | 0.2419 | 0.708 | 0.720 |
| | | | | | | | |

TABLE 2.8 Force data and surface pressure distributions (con'd)

RUN 768 SCAN 1
MACH NUMBER=0.789
REYNOLUS NO.=20.83*10**6
H.T.ANGLE= 0.12 DEG
CM = 0.0007
CC = 0.0063
CDW= 0.0092

RUN 766 SCAN 1
MACH NUMBER=0.799
RE*NOLOS NO.=20.97*10**6
W.T.ANGLE= 0.29 DEG
CN = 0.003
CM = 0.0026
CC = 0.0068
CDW= 0.0091

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

| X/C | CP | P/P0 | M LOC | X/C | CP | P/P0 | M LUC |
|-------|----------------------|----------------|---------|-------|------------------------|-----------------|-----------|
| | | | | | e. | . , | |
| | | | | | | | |
| 0.004 | 0.7316 | 0.875 | 0.440 | 0.004 | 0.7443 | 0.875 | 0.440 |
| 0.010 | -0.1247 | 0.627 | 0.840 | 0.010 | -0.0852 | 0.631 | 0.840 |
| 0.100 | -0.7754 | 0.440 | 1.150 | 9.100 | -0.7167 | 0.445 | 1.140 |
| 0.200 | -0.7456 | 0.447 | 1.130 | 0.200 | -0.7115 | 0.448 | 1.130 |
| 0.300 | -0.4978 | 0.519 | 1.010 | 0.300 | -0.7104 | 0.450 | 1.130 |
| 0.400 | -0.4747 | 0.526 | 1.000 | 0.400 | -0.4392 | 0.529 | 1.000 |
| | | | | | | | 0.970 |
| 0.500 | -0.4055 | 0.546 | 0.970 | 0.500 | -0.3954 | 0.541 | 0.940 |
| 0.600 | -0.3246 | 0.570 | 0.930 | 0.600 | -0.3138 | 0.565 | |
| 0.700 | -0.2235 | 0.599 | 0.880 | 0.700 | -0.2159 | 0.595 | 0.890 |
| 0.800 | -0.0883 | 0.638 | 0.820 | 0.800 | -0.0831 | 0.633 | 0.830 |
| 0.900 | 0.1052 | 0.694 | 0.742 | 0.900 | 0.1127 | 0.691 | 0.747 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | PRESSURE DISTRIBUTIO | N ON THE HODE | CHOCACE | | 205551105 21552 101151 | ON ON THE HOUSE | D CHDCACC |
| | PRESSURE DISTRIBUTIO | N UN THE UPPER | SURFACE | | PRESSURE DISTRIBUTE | UN UN THE UPPE | K SURFACE |
| v 46 | 60 | P/P0 | | w 46 | | P/PO | M LOC |
| x/C | CP | P/PU | M LOC | x/C | CP | P/P0 | M LUC |
| | | | | | | | |
| 0.0 | 1.1776 | 1.003 | | 0.0 | 1 1244 | 1.002 | |
| 0.002 | 0.9515 | 0.937 | 0.300 | 0.002 | 1.1766 | 0.936 | 0.300 |
| | | | | | 0.9549 | | |
| 0.004 | 0.7097 | 0.867 | 0.450 | 0.004 | 0.7038 | 0.862 | 0.460 |
| | 0.4567 | 0.793 | 0.580 | 0.006 | 0.4531 | 0.789 | |
| 0.008 | 0.1887 | 0.716 | 0.700 | 0.008 | 0.1828 | 0.709 | 0.710 |
| 0.010 | -0.0988 | 0.632 | 0.830 | 0.010 | -0.0918 | 0.627 | 0.840 |
| 0.012 | -0.3835 | 0.549 | 0.960 | 0.012 | -0.3643 | 0.546 | 0.970 |
| 0.014 | -0.5419 | 0.502 | 1.040 | 0.014 | -0.5392 | 0.495 | 1.050 |
| 0.016 | -0.7801 | 0.433 | 1.160 | 0.016 | -0.7837 | 0.425 | 1.170 |
| 0.018 | -0.8954 | 0.399 | 1.220 | 0.018 | -0.8930 | 0.392 | 1.230 |
| 0.050 | -0.9555 | 0.381 | 1.260 | 0.020 | -0.9491 | 0.375 | 1.270 |
| 0.022 | -1.0014 | 0.369 | 1.280 | 0.022 | -0.9955 | 0.361 | 1.300 |
| 0.024 | -0.9913 | 0.374 | 1.270 | 0.024 | -0.9875 | 0.365 | 1.290 |
| 0.025 | -1.0097 | 0.370 | 1.280 | 0.025 | -0.9920 | 0.365 | 1.290 |
| 0.026 | -1.0066 | 0.371 | 1.280 | 0.026 | -0.9868 | 0.366 | 1.280 |
| 0.028 | -0.9821 | 0.380 | 1.260 | 0.028 | -0.9866 | 0.367 | 1.280 |
| 0.030 | -0.9891 | 0.378 | 1.260 | 0.030 | -0.9886 | 0.367 | 1.280 |
| 0.035 | -0.9514 | 0.389 | 1.240 | 0.035 | -0.9649 | 0.374 | 1.270 |
| 0.040 | -0.9611 | 0.388 | 1.240 | 0.040 | -0.9651 | 0.376 | 1.270 |
| 0.050 | -0.9052 | 0.405 | 1.210 | 0.050 | -0.9129 | 0.392 | 1.230 |
| 0.060 | -0.8636 | 0.418 | 1.180 | 0.060 | -0.8654 | 0.406 | 1.210 |
| 0.080 | -0.8222 | 0.426 | 1.170 | 0.080 | -0.8184 | 0.418 | 1.190 |
| 0.100 | -0.7734 | 0.439 | 1.150 | 0.100 | -0.7835 | 0.428 | 1.170 |
| 0.120 | -0.7530 | 0.442 | 1.140 | 0.120 | -0.7847 | 0.428 | 1.170 |
| 0.140 | -0.7349 | 0.451 | 1.130 | 0.140 | -0.7594 | 0.434 | 1.160 |
| 0.160 | -0.7161 | 0.457 | 1.120 | 0.160 | -0.7513 | 0.435 | 1.150 |
| 0.180 | -0.6965 | 0.462 | 1.110 | 0.180 | -0.7430 | 0.437 | 1.150 |
| 0.200 | -0.6300 | 0.481 | 1.070 | 0.200 | -0.7499 | 0.436 | 1.150 |
| 0.220 | -0.4903 | 0.521 | 1.010 | 0.220 | -0.7155 | 0.445 | 1.140 |
| 0.240 | -0.5043 | 0.515 | 1.020 | 0.240 | -0.7582 | 0.432 | 1.160 |
| 0.260 | -0.4739 | 0.522 | 1.010 | 0.260 | -0.7531 | 0.433 | 1.160 |
| 0.280 | -0.5070 | 0.513 | 1.020 | 0.280 | -0.7558 | 0.433 | 1.160 |
| 0.300 | -0.5231 | 0.509 | 1.030 | 0.300 | -0.7460 | 0.435 | 1.150 |
| 0.320 | -0.5431 | 0.503 | 1.040 | 0.320 | -0.7323 | 0.438 | 1.150 |
| 0.340 | -0.5256 | 0.508 | 1.030 | 0.340 | -0.6913 | 0.450 | 1.130 |
| 0.360 | -0.5003 | 0.514 | 1.020 | 0.360 | -0.4844 | 0.512 | 1.020 |
| 0.380 | -0.4894 | 0.517 | | 0.380 | -0.4218 | 0.531 | 0.990 |
| 0.400 | -0.4901 | 0.517 | 1.010 | 0.400 | -0.4218 | 0.529 | 0.990 |
| 0.450 | -0.4565 | 0.526 | | 9.450 | -0.4330 | 0.527 | |
| 0.500 | -0.4010 | 0.544 | 1.000 | C.500 | -0.4330 | 0.540 | 1.000 |
| 0.550 | -0.3507 | | 0.970 | 0.550 | -0.3455 | 0.553 | 0.980 |
| 0.600 | | 0.560 | 0.950 | | | | 0.960 |
| | -0.3165 | 0.571 | 0.930 | 0.600 | -0.3148 | 0.564 | 0.940 |
| 0.650 | -0.2705 | 0.584 | 0.910 | 0.650 | -0.2728 | 0.576 | 0.920 |
| 0.700 | -0.2205 | 0.600 | 0.880 | 0.700 | -0.2187 | 0.593 | 0.890 |
| 0.750 | -0.1596 | 0.618 | 0.860 | 0.750 | -0.1549 | 0.611 | 0.850 |
| 0.800 | -0.0814 | 0.640 | 0.820 | 0.800 | -0.0773 | 0.634 | 0.830 |
| 0.850 | 0.0014 | 0.665 | 0.780 | 0.850 | 0.0041 | 0.659 | 0.790 |
| 0.900 | 0.0997 | 0.694 | 0.740 | 0.900 | 0.1076 | 0.690 | 0.740 |
| 0.950 | 0.2116 | 0.727 | 0.690 | 0.950 | 0.2180 | 0.722 | 0.690 |

TABLE 2.8 Force data and surface pressure distributions (con'd)

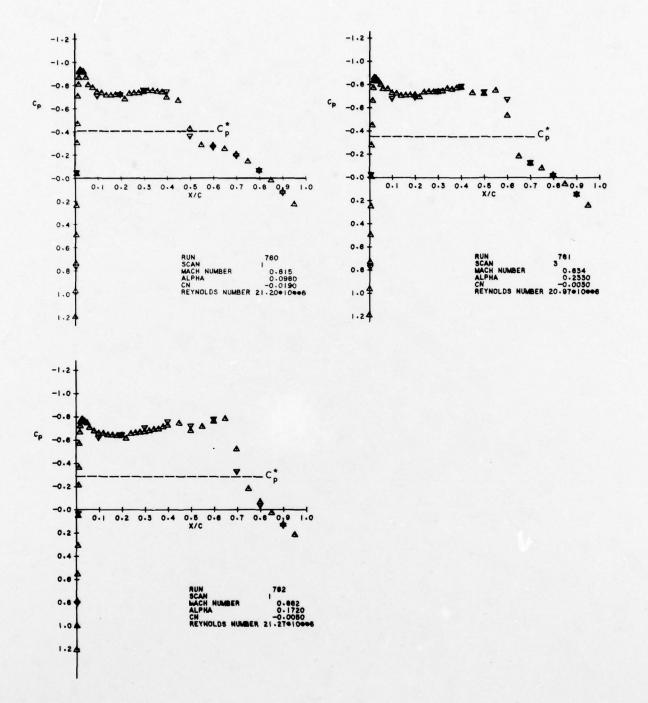


Fig. 2.15 Surface pressure distributions (concluded)

Supercritical Airfoil CAST 7 - Surface pressure, wake and boundary layer measurements
 E. Stanewsky, W. Puffert, R. Müller

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V.

and

T. E. B. Bateman

Aircraft Research Association (ARA), Bedford, England

3.1 Introduction

This data set contains selected experimental results for the supercritical airfoil CAST 7 from

- surface pressure, wake and wall pressure measurements in the 0.34 m x 0.60 m Transonic Wind Tunnel Braunschweig (TWB) of the DFVLR,
- surface pressure and wake measurements in the 8in x 18in $(0.2\ m\ x\ 0.46\ m)$ transonic tunnel of the ARA Eedford and
- boundary layer and flow field measurements in the 1 x 1 Meter Transonic Tunnel of the DFVLR-AVA Göttingen(DFVLR 1 x 1 Meter)

The flow conditions included here are listed in Table 3.3. All test cases presented were run with transition fixed at about 7.5% chord on upper and lower surfaces. Tests at increasing Reynolds numbers and observation of the corresponding drag behavior indicated that transition occurred at the location of the roughness band.

The test sections of the ARA tunnel and the DFVLR-TWB consist of solid side walls and slotted top and bottom walls. Tests with different size models of the same airfoil - the NPL 3111 in the ARA tunnel and the NACA 0012 in the DFVLR-TWB - have shown that blockage corrections for these tunnels are zero up to M_{∞} = 0.80, the highest freestream Mach number included here. Downwash (angle of attack) and curvature (lift and pitching moment) corrections derived from the ARA tests are given in Section 6.2 of this data set. The ARA data are included in corrected form. The DFVLR-TWB tests have indicated that downwash and curvature corrections are small and essentially only required at Mach numbers around M_{∞} = 0.60. Since correction procedures for that range have not yet been finalized, only uncorrected data are included.

A description of the DFVLR 1 x 1 Meter Transonic Tunnel including correction procedures is given in Chapter A5 of this report. Since the flow about the model in the case of the present boundary layer measurements is not only affected by wall constraints but also by the cover of the probe drive mechanism, starting one chord length downstream of the model trailing edge, no attempt was made to correct the data, i.e., to find freestream conditions that would correspond to the measured surface pressure distributions in a 'free air' test environment.

The boundary layer velocity profiles were determined from the measured total and static pressures assuming constant total temperature across the boundary layer. The relations used to derive the various boundary layer parameters from the velocity profiles are given in the List of Symbols (8). All data related to the boundary layer measurements are presented in a form (Table 3.6) that allows re-analysis of the results by the user.

In condluding the Introduction it should be mentioned that the airfoil CAST 7 is extremely sensitive to small changes at freestream conditions close to the design point, i.e., $M_{\infty}^{\approx} 0.76$ and $\alpha \ge 0.5$. This is demonstrated by the Mach number sweep of Figure 3.8 (p A3-30, top righthand figure) and the angle of attack sweep of Figure 3.9(p A3-32, top left hand figure). This sensitivity is also shown by the higher lift and lower drag of Run 2520, Figure 3.8(p A3-30), as compared to the corresponding data of Run 2486, Figure 3.7(p A3-28), the difference in lift and drag being mainly due to wear of the roughness band.

1. Airfoil

- 1.1. Airfoil designation
- 1.2. Type of airfoil
- 1.2.1. airfoil geometry nose radius maximum thickness base thickness
- 1.2.2. design condition

design pressure distribution

1.4. Reference on airfoil

2. Model geometry

- 2.1. Chord length
- 2.2. Span

- 2.3. Actual model co-ordinates and accuracy
- 2.4. Maximum thickness
- 2.5. Base thickness
- 2.6. Additional remarks
- 2.7. References on model

3. Wind tunnel

- 3.1. Designation
- 3.2. Type of tunnel
- 3.2.1. stagnation pressure
- 3.2.2. stagnation temperature
- 3.2.3. humidity / dew point
- 3.3. Test section Transonic Tunnel see data set of Chapter A 5.

CAST 7

Supercritical airfoil designed by a modified Murman/Cole/Krupp-method. Shockfree design, rooftop pressure distribution, medium rear loading.

Table 3.2 and Figure 3.2

Reference on design method and airfoil: [1,2]

| No. 1) | Model | Chord | Span | Tested in tunnel |
|--------|----------------------|-------|------|------------------------------|
| | | [mm] | [mm] | |
| ① | SP 120 ²⁾ | 200 | 340 | DFVLR-TWB (0.34m x 0.60m) |
| 2 | CP 7 ²⁾ | 127 | 200 | 8in x 18in ARA - Bedford |
| 3 | SP 125 ³ | 250 | 1000 | DFVLR 1x1 Me- ter |

- 1) Numbers (1) (2) (3) are hereafter used to identify wind tunnels, models, etc. of ARA Bedford and DFVLR
- 2) Pressure distribution and wake measurements
- 3) Boundary layer and flow field measurements

Table 3.1 and Figure 3.1

Models SP 120 and SP 125 were designed and built by DFVLR-AVA Model CP 7 was designed and built by ARA Bedford

[1, 2, 5]

1)

- DFVLR Transonic Wind Tunnel Braunschweig (TWB)
- ② ARA 8in x 18in (0.2m x 0.46m)
- ③ DFVLR 1 x 1 Meter

Blow down

- Variable between 1.5 and 4.5 bar 0
- 2 Variable between 1.3 and 4.0 bar
- ~ 260 K. Temperature decrease during a run : 1 7° 2 5° ~ 290 K. 1 210 K 240 K

Two-dimensional (Figure 3.3)

1)All information given here applies to tunnels 1) and 2 For information on the DFVLR 1x1 Meter

- 3.3.1. dimensions
- 3.3.2. type of walls
- 3.4. Flow field (empty test section)
- 3.4.1. reference static pressure
- 3.4.2. flow angularity
- 3.4.3. Mach number distribution

- 3.4.4. pressure gradient
- 3.4.5. turbulence / noise level
- 3.4.6. side wall boundary layer
- 3.6. References on wind tunnel

4. Tests

- 4.1. Type of measurements
- 4.2. Tunnel/ model dimensions
- 4.2.1. height/chord ratio
- 4.2.2. width / chord ratio
- 4.3. Flow conditions included in present data base
- 4.3.4. transition
 - transition fixing

- 1 0.34 m x 0.60 m
- 0.203 m x 0.457 m
- Side walls solid, top and bottom walls ② slotted. Open area ratio 2.35 % (Figure 3.3)

② Open area ratio 3.2 %; each slotted wall has six slots 0.94 mm wide and two slots 0.46 mm wide

- 1 Pressure orifice on top wall (Figure 3.4)
- Wall static pressure 650 mm upstream of model centreline on top wall
- ± 0.07° 1 2 : ± 0.05°
- Figure 3.4

| $^{\mathrm{M}}_{\infty}$ | 0.47 | 0.6 | 0.7 | 0.75 | 0.8 |
|--------------------------|-------|-------|-------|--------|--------|
| | 0.003 | 0.003 | 0.004 | 0.0045 | 0.0045 |

- * Variation over a distance ranging from one chord length upstream to one chord length downstream of model
- $\Delta \text{M} < 0.002 \text{ at M} \\ \text{over model chord}^{\infty} \stackrel{\leq}{=} 0.82 \text{ on centreline}$
- (1) Figure 3.4
- 2 Mach number gradient along length of model: < 0.002 at $M_{\infty} \le 0.82$
- 1 Has not yet been determined.
- 2 Under investigation using Kulite transducers
- No special treatment. Boundary layer growth is compensated by diverging top and bottom
- Top and bottom walls diverge. 2 $\delta^*/b = 0.015$ at $M_{\infty} = 0.70$
- [3, 4]
- Surface pressure and wake measurements
- 1 Upper and lower wall pressures
- Boundary layer measurements
- Schlieren observations

| Tunnel | Н/с | b/c |
|-------------------|------|-----|
| DFVLR - TWB | 3 | 1.7 |
| DFVLR 1 x 1 Meter | 4 | 4 |
| 8in x 18in ARA | 3, 6 | 1,6 |

Table 3.3

Glass spheres

- width : ① ② ③

1.0 % c

4.3.5. temperature equilibrium

4.5. References on tests

5. Instrumentation

- 5.1. Surface pressure measurements
- 5.1.1. pressure holes
 - size
 - spanwise station(s)
 - chordwise positions
- 5.1.2. type of transducers and scanning devices
- 5.2. Wake measurements
- 5.2.1. type/size of instruments
- 5.2.2. streamwise positions
- 5.2.3. type of transducers and scanning devices
- 5.3. Boundary layer measurements
- 5.3.1. type/size of instruments
- 5.3.2. locations
- 5.3.3. type of transducers and scanning devices

- Diameter ① 0.065 mm ② 0.058 mm

Note: The type and location of tripping devices is indicated in the diagrams. Example: 0.09 BA, 30 L/25 L means glass spheres with an average dia. of 0.09 mm at 30 % c on upper and 25 % c

0.090 mm

- on lower surface

 ① ② See 3.2.2.
- 3 yes

[3, 5]

- ① ③ Diameter 0.5 mm (SP 120, SP 125)
- Diameter 0.3 mm (CP 7)
- ① Centreline orifices are staggered in the nose region over a range ± 7.5 mm wide
- Orifices are staggered in a diamond pattern over a range ± 38 mm wide

Figure 3.1 and Tables 3.4/3.5/3.6

- ① Druck Ltd. differential pressure transducers plus Scanivalves Range: ± 50 psid, Accuracy: ± 0.06 % FS
- Statham transducer plus Scanivalves Range: 49 psi ., Accuracy: ± 0.03% FS
- Traversable rake consisting of 7 probes 30 mm apart. Every second probe is a static probe; the probe is traversed over a distance of 60 mm. Measuring points are 1.3 mm apart.
- Rake consisting of 48 pitot probes, spaced 1.27 mm in the center region with a diameter of 0.5 mm, and 3 static probes. Rake is adjusted for optimal position with respect to wake
- 1 chord length
 2 chord lengths
 downstream of trailing edge
- ① Druck Ltd. differential pressure transducers. Each probe is equipped with its own transducer. Range and accuracy: same as 5.1.2.
- Statham transducer plus Scanivalve Range: 7.25 psi, Accuracy: ± 0.04% FS

Tunnel: DFVLR 1 x 1 Meter Model: SP 125 (c = 250 mm)

Boundary layer probe, consisting of a 0.15 mm pitot probe, a static probe and a probe to measure the flow direction (Figure 3.5)

Upper surface: x/c = 0.3 to 0.99 (probe traverses in x)

CEC and Statham differential pressure transducers Range: \pm 10 and \pm 15 psid. Accuracy: \approx \pm 0.4 % FS

5.4. Skin friction measurements

5.5. Flow visualization

5.5.1. flow field

6. Data

6.1. Accuracy (wall interference excluded)

6.1.1. angle of attack setting

6.1.2. free stream Mach number:

- setting

- variation during one pressure scan

6.1.3. pressure coefficients

6.1.4. aerodynamic coefficients

6.1.5. boundary layer quantities

6.1.6. repeatability

6.2. Wall interference corrections

6.2.1. angle of attack

6.2.2. blockage (solid/wake)

6.2.3. streamline curvature (lift)

Skin friction was determined from measured boundary layer profiles using a modified Ludwieg - Tillmann formulation [6]. See List of Symbols (8).

Schlieren observation with single pass system

① ± 0.02°

② : ± 0.01°

① ± 0.002

② : ± 0.001

① ± 0.002

2 : Negligible

Obtained by integrating pressure distribution

③ Probe position: Δz (normal to surface) = ± 0.01 mm. The boundary layer thickness upstream of the shock is about 1.8 mm. Δx (chordwise) = ± 1 mm.

① Average values for the range of freestream conditions included: $\Delta c \approx \pm 0.5 \%, \ \Delta c_L \approx \pm 0.3 \%, \ \Delta c_m \approx \pm 0.5 \%,$ $\Delta c_D \approx \pm 2 \%$

② $\Delta c_p = \pm 0.5 \%$, $\Delta c_L = \pm 0.5 \%$, $\Delta c_m = \pm 0.5 \%$ $\Delta c_D = \pm 2 \%$

① See 6.2.3.

h = 457 mm, c = 127 mm, $\delta_0 = -0.03$,

 $\delta_1 = 0.11$

Slot width was selected experimentally to give zero blockage corrections

Experiments with three different size models of the airfoils NACA 0012 and DFVLR-R2 showed that only small corrections are required. Data are not yet sufficiently analysed to establish final correction procedures.

corrected c = c + Ac

See the Introduction

[3, 4]

6.2.5. remarks

6.2.6. references on wall interference correction

6.3. Presentation of data

6.3.1. aerodynamic coefficients

6.3.2. surface pressure

6.3.3. boundary layer quantities

6.3.4. wall interference corrections included?

6.3.5. corrections for model deflection

6.3.6. Empty test section calibration taken into account?

6.3.8, additional remarks

6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?

6.5. To be contacted for further information on tests

Tables: 3.4/3.5

Figure: 3.6

Tables: 3.4/3.5 Figures: 3.7/3.8/3.9

Table: 3.6 Figure: 3.10

Schlieren pictures: Figure 3.10

① ③ No

2 Yes

No

Yes

No special notation is used to identify corrected and uncorrected data.

See 2.1. of this questionnaire and Table 3.3

A comparison of ARA and DFVLR-TWB pressure distributions is given in Figure $3.7\,$

W. Puffert
DFVLR
D-3300 Braunschweig

T.E.B. Bateman Aircraft Research Association (ARA) Manton Lane Bedford, MK41 7PF England

③ E. Stanewsky DFVLR-AVA Bunsenstraße 10 D-3400 Göttingen

7. References

[1] KÜHL, P. ZIMMER, H. The design of airfoils for transport aircraft with improved high speed characteristics DORNIER GmbH, Report 74/16B, 1974

[2] STANEWSKY, E. ZIMMER, H.

Development and wind tunnel tests of three supercritical airfoils for transport aircraft.

Z. Flugwiss. 23 (1975), Heft 7/8

[3] STANEWSKY, E. PUFFERT, W. MÜLLER, R.

The DFVLR Transonic Wind Tunnel Braunschweig: Calibration results for the modified test section and results for the airfoil CAST 7. DFVLR Report IB 151-77/10, 1977

[4] HAMMOND, B.F.L.

Some notes on model testing in the ARA two-dimensional facility. Aircraft Research Association Memo No. 170, 1975

[5] HAMMOND, B.F.L.

ARA model test note T 28/4, Aircraft Research Association, Bedford

[6] SASMAN, P.K. CRESCI, R.J. Compressible turbulent boundary layer with pressure gradient and heat transfer.

AIAA Journal, Vol. 4, No. 1, January 1966, pp 19-25

8. List of symbols

| o. Elst of symbols | |
|-----------------------------------|--|
| b | span, tunnel width |
| c, l, L | model chord |
| c _p | pressure coefficient |
| c * | pressure coefficient at M |
| cA, cL | lift coefficient |
| c _m , c _{m25} | pitching moment coefficient (based on 0.25 c) |
| cw, cD | drag coefficient |
| M, Ma, M | freestream Mach number |
| ML | local Mach number (airfoil surface, $f(p / p_0)$) |
| МВ | local Mach number (boundar layer, $f(p_B/p_T)$) |
| H, h | tunnel height, shape factor |
| p | static pressure |
| p _o , H | freestream total pressure |
| P_{T} | total pressure in the boundary layer |
| Re, R, E-6* RE | Reynolds number, based on freestream conditions and chord length |
| R | nose radius |
| T _o | freestream total temperatur |
| u | velocity in the boundary layer |
| t | maximum thickness |
| x, y, z | coordinates (Figure 3.1) |
| | (z is in the case of the boundary layer measure- ments taken normal to the airfoil surface) |
| α | angle of attack |
| δ, DEL | boundary layer thickness (u/u _e = 0.99) |
| δ [*] , DEL* | displacement thickness |
| Ө, ТНЕТА | momentum thickness |
| γ | ratio of specific heats |

Relations used in the reduction of the boundary layer data

$$\delta^{*} = \int_{0}^{\delta} (1 - \frac{\rho}{\rho_{e}} \cdot \frac{u}{u_{e}}) \cdot dz$$

$$0 = \int_{0}^{\delta} \frac{\rho}{\rho_{e}} \cdot \frac{u}{u_{e}} (1 - \frac{u}{u_{e}}) \cdot dz$$

$$c_{f} = \{0.246 \cdot e^{(-1.561 \cdot Hi)} \cdot Re_{\Theta}^{-0.268} \} / \{\frac{\bar{\tau}}{\tau_{O}} (1 + \frac{\gamma - 1}{2} \cdot Me^{2}) \}^{0.7963}$$

$$\bar{\tau}/\tau_0 = 0.5 \cdot \frac{T_w}{T_{te}} + 0.22 \cdot P_r^{1/3} + \frac{0.5 - 0.22 \cdot P_r^{1/3}}{1 + \frac{\gamma - 1}{2} \cdot Me^2}$$

Hi =
$$(H - \frac{\gamma - 1}{2} \cdot Me^2) / (\frac{T_w}{T_{te}} [1 + \frac{\gamma - 1}{2} \cdot Me^2])$$

Assumptions:
$$P_r = 1$$
 $T_w/T_{te} = 1$ T_w Wall temperature

 T_{te} total temperature at edge of boundary layer $(T_{te} = T_{o})$

Subscripts

co freestream conditions

TE trailing edge

u upper surface

lower surface

e, E edge of boundary layer

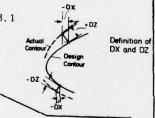
B boundary layer

Table 3.1 Coordinates of the airfoil CAST 7

a. Model: SP 120 (TWB tests)

| Upper surfa | ce | | | Lower sufa | ice | | |
|-------------|----------|---------|-----------|------------|----------|---------|----------|
| XUS (mm) | ZUS (mm) | DX (mm) | DZUS (mm) | XLS (mm) | ZLS (mm) | DX (mm) | DZLS (mm |
| Design | Design | | | Design | Design | | |
| 0.000 | 0.000 | | | 200.000 | -0.931 | | 0.102 |
| 0,033 | 0.428 | -0.043 | 0.007 | 192.389 | -0.286 | 0.008 | 0.107 |
| 0.711 | 2.041 | -0.082 | 0.053 | 188.578 | -0.043 | 0.007 | 0.130 |
| 1.152 | 2.653 | -0.063 | 0.050 | 184.763 | 0.130 | 0.005 | 0.130 |
| 2.001 | 3.581 | -0.010 | 0.011 | 180.946 | 0.227 | 0.002 | 0.129 |
| 3.591 | 4.813 | 0.021 | -0.032 | 177.127 | 0. 237 | -0.001 | 0.132 |
| 6.261 | 6,220 | -0.001 | 0.003 | 173.310 | 0.164 | -0.004 | 0.133 |
| 9.052 | 7.374 | -0.001 | 0.002 | 169.494 | 0.009 | -0.007 | 0.132 |
| 13.678 | 8.788 | -0.002 | 0.008 | 161.875 | -0.511 | -0.010 | 0.125 |
| 17.413 | 9,636 | -0.002 | 0,012 | 158.072 | -0.858 | -0.013 | 0.131 |
| 24, 970 | 10.886 | 0.000 | -0.001 | 150.480 | -1.681 | -0.016 | 0.137 |
| 32, 578 | 11.781 | 0.003 | -0.026 | 146.689 | -2.140 | -0.017 | 0.136 |
| 40, 211 | 12, 433 | 0.001 | -0.017 | 139.114 | -3.117 | -0.020 | 0.148 |
| 47.857 | 12,909 | 0.001 | -0.022 | 135.329 | -3.623 | -0.019 | 0.142 |
| 55, 511 | 13, 252 | 0.001 | -0.031 | 127.760 | -4.641 | -0.019 | 0.140 |
| 63.168 | 13.488 | 0.001 | -0.046 | 120.189 | -5.642 | -0.018 | 0.140 |
| 70.828 | 13.634 | 0.001 | -0.057 | 112.612 | -6.599 | -0.016 | 0.132 |
| 82.319 | 13.703 | -0.000 | -0.069 | 105.026 | -7.485 | -0.015 | 0.133 |
| 89,980 | 13,645 | -0.001 | -0.069 | 97.431 | -8. 279 | -0.013 | 0.130 |
| 97.640 | 13.504 | -0.002 | -0.073 | 93.629 | -8.634 | -0.011 | 0.120 |
| 105, 298 | 13.273 | -0.002 | -0.054 | 86.016 | -9. 243 | -0.008 | 0.109 |
| 112,951 | 12,939 | -0.002 | -0.040 | 78.393 | -9.702 | -0.005 | 0.101 |
| 120, 599 | 12,490 | -0.003 | -0.047 | 70.761 | -9.985 | -0.002 | 0.088 |
| 128, 238 | 11.911 | -0.005 | -0.057 | 63.124 | -10.071 | -0.000 | 0.069 |
| 139.672 | 10.767 | -0.008 | -0.065 | 55, 488 | -9.943 | -0.001 | 0.043 |
| 147, 273 | 9.807 | -0.011 | -0.083 | 47.859 | -9.597 | 0.001 | 0.019 |
| 154, 852 | 8.687 | -0.015 | -0.091 | 40.243 | -9.034 | 0.001 | 0.007 |
| 162, 409 | 7.427 | -0.019 | -0.107 | 32,645 | -8. 269 | -0.002 | -0.013 |
| 166.179 | 6.752 | -0.025 | -0.137 | 25,066 | -7.324 | -0.004 | -0.032 |
| 173, 707 | 5.332 | -0.029 | -0.152 | 13.748 | -5.562 | -0.000 | -0.035 |
| 181. 225 | 3,854 | -0.032 | -0.161 | 9.015 | -4.619 | -0.013 | -0.059 |
| 188.737 | 2,354 | -0.034 | -0.171 | 4.109 | -3.486 | -0.013 | -0.649 |
| 192, 493 | 1.598 | -0.034 | -0.167 | 1.733 | -2,673 | -0.008 | -0.015 |
| 196, 247 | 0.838 | -0.032 | -0.157 | 0.217 | -1.052 | -0.091 | -0.038 |
| 200,000 | 0.071 | | -0.150 | 0.000 | 0.000 | | |

For plot of measured error of manufactured airfoil see Fig. 3.1



b. Model: CP 7 (ARA tests)

| | | Upper | Surface | (mm) | Lower | Surface | (mm) |
|-------|---------|--------|---------|--------|--------|---------|--------|
| | | z | Z | Δz | z | z | Δz |
| x/c | x (mm) | Design | Actual | Error | Design | Actual | Error |
| 0.115 | 14.605 | 6.734 | 6.739 | +0.005 | -4.468 | -4.496 | +0.028 |
| 0.155 | 19.685 | 7.376 | 7.376 | 0 | -5.131 | -5.156 | +0.025 |
| 0.215 | 27.305 | 8.016 | 7.998 | -0.018 | -5.883 | -5.893 | +0.010 |
| 0.275 | 34.925 | 8.402 | 8.379 | -0.023 | -6.304 | -6.312 | +0.008 |
| 0.335 | 42.545 | 8.618 | 8.603 | -0.015 | -6.383 | -6.383 | 0 |
| 0.395 | 50.165 | 8.700 | 8.694 | -0.006 | -6.142 | -6.137 | -0.005 |
| 0.455 | 57.785 | 8.656 | 8.651 | -0.005 | -5.626 | -5.618 | -0.008 |
| 0.515 | 65.405 | 8.479 | 8.476 | -0.003 | -4.895 | -4.879 | -0.016 |
| 0.575 | 73.025 | 8.146 | 8.146 | 0 | -4.003 | -3.980 | -0.023 |
| 0.635 | 80.645 | 7.630 | 7.628 | -0.002 | -3.010 | -2.985 | -0.025 |
| 0.695 | 88.265 | 6.886 | 6.891 | +0.005 | -1.989 | -1.958 | -0.031 |
| 0.755 | 95.885 | 5.890 | 5.883 | -0.007 | -1.026 | -0.991 | -0.035 |
| 0.815 | 103.125 | 4.651 | 4.641 | -0.010 | -0.264 | -0.221 | -0.043 |
| 0.875 | 111.125 | 3.226 | 3.221 | -0.005 | 0.132 | 0.168 | -0.036 |
| 0.920 | 116.840 | 2.096 | 2.088 | -0.008 | 0.099 | 0.117 | -0.018 |
| 0.950 | 120.650 | 1.334 | 1.334 | 0 | -0.079 | -0.081 | +0.002 |
| 0.978 | 124.143 | 0.627 | 0.625 | -0.002 | -0.333 | -0.356 | +0.023 |
| 1.000 | 127.000 | 0.063 | 0.038 | -0.005 | -0.589 | -0.599 | +0.010 |
| | | | | | | | |

Leading edge inspected by Acrulite templates and Shadowgraph technique.

Accuracy: ±0.007 mm

Table 3.2 Design pressure distribution

Theory:

Pressure distribution at (x, α + -)

Re = $6 \cdot 10^6$ Boundary layer: turbulent

M_{∞} = 0.760 α = 0.0

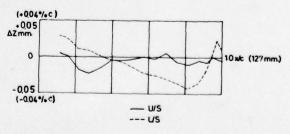
C_L = 0.573 C_m = -0.13551

C_D = 0.00458 C_p * =-0.5587

| X/C | CPU | CPL |
|----------|-----------|-----------|
| -0.82500 | 0.04514 | 0.04514 |
| -0.57500 | 0.07580 | 0.07580 |
| -0.35000 | 0.12695 | 0.12695 |
| -0.17500 | 0.24443 | 0.24443 |
| -0.07500 | 0.46224 | 0.46230 |
| -0.03500 | 0.70025 | 0.70054 |
| -0.01500 | 0.92820 | 0.92899 |
| -0.00250 | 1.13935 | 1.14075 |
| 0.00250 | 0.91234 | 0.91148 |
| 0.00750 | 0.53289 | 0.55421 |
| 0.01250 | 0.35106 | 0.43495 |
| 0.01750 | 0.20055 | 0.36309 |
| 0.02500 | 0.00269 | 0.27578 |
| 0.03500 | -0. 21409 | 0.18454 |
| 0.04750 | -0.43172 | 0.10294 |
| 0.06500 | -0.63032 | 0.03330 |
| 0.08750 | -0.75432 | -0.02564 |
| 0.11500 | -0.82036 | -0.09227 |
| 0.15500 | -0.88311 | -0.19051 |
| 0. 21500 | -0.93414 | -0.32130 |
| 0.27500 | -0.90771 | -0.39377 |
| 0.33500 | -0.89268 | -0.39120 |
| 0.39500 | -0.88736 | -0.32924 |
| 0.45500 | -0.86930 | -0. 23556 |
| 0.51500 | -0.79762 | -0.12840 |
| 0.57500 | -0.63271 | -0.01747 |
| 0.63500 | -0.55594 | 0.09305 |
| 0.69500 | -0.52752 | 0.19929 |
| 0.75500 | -0.39832 | 0. 29214 |
| 0.81500 | -0. 24718 | 0.36020 |
| 0.87500 | -0.10430 | 0.39477 |
| 0.92000 | -0.00883 | 0.39337 |
| 0.95000 | 0.05860 | 0.37630 |
| 0.97750 | 0.13893 | 0.34661 |
| 1.00000 | 0.24843 | 0.32973 |
| 1.02500 | 0.29324 | 0. 29335 |
| 1.09000 | 0.17804 | 0.17779 |
| 1. 22500 | 0.10612 | 0.10588 |
| 1.47500 | 0.06025 | 0.06001 |
| 1.85000 | 0.03618 | 0.03595 |
| 2. 40000 | 0.01785 | 0.01765 |

Experiment ARA: Table 3.5 and Figure 3.2 Experiment DFVLR-TWB: Figure 3.2

Note: The location of the pressure orifices is given with the surface pressure distributions in Tables 3.4, 3.5 and 3.6 and in Figure 3.1



ARA CAST 7 airfoil (Model CP 7) Measured errors of manufactured airfoil

Table 3.3 Flow conditions included in present data set

| | | | | | - | - |
|-----------------|-----------------------------|-----------------------|---------------------|------------------|--------|--------------------------------------|
| M _{co} | a ^o | Re · 10 ⁻⁶ | Transition | Wind Tunnel | Model | Run |
| 0.70 | -2 to 5 | 6 | .06 BA, 7/7 L | DFVLR - TWB | SP120 | 2495-2502 |
| 0.76 | -2 to 3 | | | | | 248 4- 2493 |
| 0.4 to 0.8 | 0.5 | 6 | | | | 2511-2524 |
| 0.76 | 0, 5; 2.0 | 4. 1 to 13. 5 | .06 BA,7/7 L | DFVLR - TWB | SP 120 | 2504-2510; 2525-2531 |
| 0.70 | -0.19 to 4.59 1) | 6 | .06 BA, 8/8L | ARA 18 in x 8 in | CP 7 | 58 - 63 |
| 0.76 | 0.26 to 2.68 ¹) | | | | | 106 - 112, 154 2) |
| 0.60 to 0.80 | ~ 0.741) | 6 | .06 BA, 8/8L | ARA 18 in x 8 in | CP 7 | 37, 59, 69, 89, 109 119, 131, 150 |
| 2. Boundary | layer measurement | s | | | | |
| 0.765 | 2. 5 | 2, 4 | . 09 BA, 7. 5/7. 5L | DFVLR 1x1 Meter | SP 125 | 157-166, 193-195 |
| 0.765 | 2.5 | 2, 4 | .09 BA. 7. 5/7. 5L | DFVLR 1x1 Meter | SP 125 | 167-177, 197-199 |

Transition .06BA, 7/7L means: Roughness band of .06 mm diameter glass spheres in 7 % c on upper and lower surface.

Table 3.4 DFVLR-TWB tests. Aerodynamic coefficients, airfoil surface and top and bottom wall pressure distributions

Transition at 7 % c on upper and lower surface.

a. Aerodynamic coefficients

b. Airfoil surface and top and bottom wall pressures

Note: The upper surface and top wall pressures

| | | | | | | | | ar | e list | ed first | | | | |
|------|-------|---------|--------|---------|-----------|------------|--------|--------|----------|----------|-------|---------|---------|---------|
| | | | | | | | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E- 60RE | AL PHA |
| NR. | MACH | E- 6*RE | AL PHA | CA | CM | CM | 2464 | - 761 | 5.97 | -1-00 | 2485 | .759 | 5.98 | .00 |
| 2493 | .697 | 5.80 | -2.00 | -1083 | 10867 | .009632 | | | | | | | | |
| 2495 | . 701 | 6.06 | -1.00 | .2478 | 11050 | .009341 | | | | | 1 | | | |
| 2496 | . 703 | 5.90 | -00 | .3910 | 11076 | .009554 | X/L | CP | XANT | CPV | X/L | CP | XW/L | CPW |
| 2497 | . 701 | 5.97 | 1.00 | .5422 | 11077 | .010476 | .000 | | | | | | | |
| 2498 | . 701 | 5.94 | 2.00 | . 7088 | 1 69 79 | .012468 | .004 | 1.0890 | -5.25 | 6679 | - 666 | 1.1379 | -5.25 | 8888 |
| 2499 | .702 | 5.96 | 3.00 | .9057 | 11369 | .021677 | .008 | | - 4 - 50 | 0076 | | .7756 | -4.50 | 66 52 |
| 2500 | . 699 | 5.95 | 4.00 | 1.0637 | 12300 | .039833 | | .6525 | -3.75 | 6847 | - 008 | .5019 | -3.75 | 0008 |
| 2501 | . 700 | 5.91 | 4.50 | 1.0297 | 11697 | . 0 609 49 | .015 | -3836 | -3.00 | 0012 | .015 | .2197 | -3.00 | .0046 |
| 2502 | . 699 | 5.90 | 5.00 | 1.0187 | 11890 | | .025 | -1382 | -2.25 | . 0081 | .025 | 6289 | -2.25 | - 00 50 |
| | | | | | | | .040 | 1296 | -1.50 | .0106 | .040 | 2827 | -1 - 50 | . 0084 |
| | | | | | | | .060 | 2650 | -1.25 | - 6678 | .060 | 4000 | -1.25 | .0069 |
| 2490 | .761 | 5.98 | -2.00 | -1067 | 11769 | .010196 | .686 | 5417 | -1.66 | . 6686 | - 686 | 8358 | -1.66 | . 6619 |
| 2484 | .761 | 5.97 | -1.00 | .2627 | 11974 | .010101 | -100 | 5497 | 75 | . 6651 | -100 | 8331 | 75 | 0083 |
| 2485 | . 759 | 5.98 | .00 | . 4268 | 12195 | .010441 | - 1 40 | 5488 | 50 | 0054 | -140 | 7663 | 50 | 0175 |
| 2486 | .761 | 6.00 | - 50 | .5164 | 12232 | .011146 | .166 | 5763 | 25 | 6241 | -166 | 6658 | 25 | 6427 |
| 2491 | .760 | 5.99 | • 75 | .5709 | 12591 | .011030 | .550 | 5883 | . 00 | 0556 | .220 | 7871 | .00 | 0838 |
| 2487 | . 760 | 5.92 | 1.00 | .6297 | 13114 | .013638 | .268 | 5838 | .25 | 6952 | -268 | 8652 | .25 | 1378 |
| 2488 | .759 | 6.00 | 1.50 | .7187 | 1 41 59 | .019940 | . 300 | 5722 | - 50 | 1191 | .300 | 8874 | . 50 | 1786 |
| 2489 | .760 | 5.94 | 2.00 | .7258 | 13538 | .041963 | .340 | 5528 | .75 | 1087 | -340 | 61 61 | .75 | 1407 |
| 2492 | | 5.99 | 3.00 | .7384 | 12548 | | -350 | 5687 | 1.00 | 1112 | -380 | 6088 | 1.00 | 1390 |
| 2492 | .761 | 3.99 | 3.66 | . /384 | 12546 | .061552 | .420 | 5733 | 1.25 | 88 62 | . 428 | 6430 | 1.25 | 1125 |
| | | | | | | | . 468 | 5840 | 1.50 | 0700 | . 460 | 6692 | 1.50 | 0852 |
| | | | | | | | - 500 | 5925 | 1.75 | 0571 | - 500 | 6636 | 1.75 | 0648 |
| 2511 | - 407 | 5.40 | - 50 | .3818 | 09001 | -009730 | - 540 | 6505 | 2.00 | 8487 | .540 | 6931 | 2.00 | 8539 |
| 2512 | . 499 | 5.76 | • 50 | . 3997 | 09495 | .008745 | • 580 | 6895 | 2.25 | 0424 | - 580 | 7712 | 2.25 | 8466 |
| 2514 | . 602 | 5.86 | - 50 | . 4272 | 1 0 2 0 8 | .008973 | - 620 | 6546 | 2.50 | 0392 | . 628 | 7893 | 2.50 | 8443 |
| 2515 | . 650 | 5.80 | .50 | . 4448 | 10659 | .009466 | . 780 | 5328 | 2.75 | 0393 | .788 | 5325 | 2.75 | 8438 |
| 2516 | . 702 | 5.88 | • 50 | . 4674 | 11216 | -010174 | -800 | 2892 | 3.50 | 6299 | .800 | 2920 | 3.50 | 0349 |
| 2517 | .717 | 5.81 | • 50 | . 4801 | 11450 | .009903 | .900 | 0 640 | -5.25 | 0030 | .900 | 0650 | -5.25 | |
| 2518 | .739 | 5.87 | • 50 | .4965 | 11774 | .010352 | .950 | .0359 | -4-50 | 0058 | .950 | .0324 | | 0015 |
| 2519 | .751 | 5.96 | - 50 | .5126 | 12174 | .011314 | .975 | .0740 | -3.75 | .0002 | .975 | .0681 | -4.50 | 9996 |
| 2520 | .759 | 5.97 | . 50 | . 5228 | 12355 | .010731 | 1.000 | -1059 | -3.00 | .0034 | 1.000 | | -3.75 | .0063 |
| 2524 | .765 | 5.88 | • 50 | . 52 70 | 12508 | -011194 | .000 | 1.0890 | -2.25 | .0101 | | -0940 | -3.00 | .0096 |
| 2521 | .770 | 5.99 | - 50 | .5470 | 13323 | .012007 | .004 | 1818 | -1.50 | .0189 | .000 | 1.1379 | -2.25 | -0162 |
| 2522 | .779 | 5.89 | • 50 | - 5340 | 13716 | .016398 | .008 | 4822 | -1.25 | .0189 | -004 | .1296 | -1.50 | .0254 |
| 2523 | .801 | 5.92 | - 50 | . 4506 | 1 3 480 | .022780 | .626 | 4556 | -1.00 | | - 008 | 1268 | -1.25 | .0283 |
| | | | | | | | .050 | 1968 | | .0550 | .020 | 1620 | -1.00 | -0318 |
| | | | | | | | .100 | 3150 | 75 | .0192 | -050 | 0542 | 75 | .0318 |
| 2504 | .759 | 4-11 | - 50 | .5160 | 12051 | .012377 | .150 | 4642 | 50 | .0189 | -100 | 1726 | 50 | -0350 |
| 2505 | .761 | 5.10 | - 50 | . 5228 | 12249 | .011555 | .200 | | 25 | .0089 | -150 | 2725 | 25 | .0316 |
| 2506 | .760 | 5.81 | . 50 | . 5263 | 12340 | .010599 | | 5113 | .00 | 0023 | .500 | - 3786 | .00 | .0301 |
| 2507 | .763 | 7.83 | .50 | .5327 | 12652 | .010580 | -250 | 6211 | .25 | 0117 | -250 | 4686 | .25 | .0223 |
| 2508 | .762 | 10.07 | . 50 | .5426 | 12923 | .889927 | - 350 | 5550 | • 50 | 6692 | •350 | 4684 | • 50 | . 626 6 |
| 2509 | .758 | 11.77 | .50 | . 5468 | 12984 | .010390 | . 450 | 3376 | .75 | 00 61 | .450 | 2861 | .75 | .0265 |
| 2510 | .760 | 13.41 | 4 50 | .5413 | 12921 | .010124 | . 550 | 1370 | 1.00 | .0033 | .550 | 1065 | 1.00 | .0314 |
| 6316 | . 100 | | . 30 | | | | • 650 | . 6454 | 1.25 | -0156 | - 650 | .9680 | 1.25 | . 6328 |
| | | | | | | | . 756 | -1967 | 1 - 50 | . 6696 | .750 | .2163 | 1.50 | . 6279 |
| | 244 | 4.09 | 2.00 | .7116 | 13192 | .042354 | .850 | .2921 | 1.75 | .0065 | -850 | .3129 | 1.75 | .0197 |
| 2525 | .760 | | | .7279 | 13535 | .038594 | 1.000 | -1059 | 2.00 | .0033 | 1.000 | . 89 48 | 2.00 | .0144 |
| 2526 | .760 | 5.03 | 2.66 | | 13966 | .036199 | | | 2.25 | 6679 | | | 2.25 | 6686 |
| 2527 | .760 | 5.94 | 5.00 | . 7367 | 14236 | .839436 | | | 2.50 | 0076 | | | 2.50 | 0052 |
| 2531 | .762 | 7.81 | 2.00 | .7402 | | | | | 2.75 | | | | 2.75 | 0008 |
| 2530 | . 759 | 9.96 | 2.00 | .7710 | 14771 | -831 793 | | | 3.50 | 0012 | 1 | | 3.56 | . 6646 |
| 2529 | .758 | 11.78 | 2.00 | .7736 | | .032559 | | | | | | | 3.30 | |
| 2528 | . 759 | 13.49 | 2.00 | .7772 | 14957 | .031563 | | | | | | | | |

CP airfoit surface pressure coefficients

L model chord XW location of wall orifices(with reference to model leading edge) CPW wall pressure coefficient

¹⁾ Corrected angles of attack

²⁾ Compared to design pressure distribution (Figure 3.2)

Table 3.4 Continued

| , | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E- 60 AE | AL PHA |
|---|---|--|--|---|---|---|--|--|--|---|--|---|--|--|--|--|
| 5 | 486 | .761 | 6.00 | . 50 | 2487 | -760 | 5.92 | 1.00 | 2488 | . 759 | 6.00 | 1.50 | 2489 | -760 | 5-94 | 2.00 |
| X/I | | CP | XW/L | CPW | X/L | CP | XVAL | CPW | X/L | CP | XWA | CPW | X/L | CP | XW/L | CPV |
| .0 | | 1.1486 | -5.25 | 0079 | .000 | 1.1487 | -5.25 | | .000 | 1-1416 | -5.25 | 0102 | | 1-1551 | -5.25 | 0087 |
| .0 | 84 | .7052 | - 4.50 | 0048 | .004 | - 6380 | -4.50 | 0050 | .004 | .5594 | -4-50 | 0046 | -004 | - 5241 | -4-50 | 0015 |
| .0 | | . 4244 | -3.75 -3.00 | .0008 .0055 | -008 -015 | .3432 | -3.75 -3.00 | .0045 | -008 -015 | ·2679 | -3.75 -3.66 | .0061 | -008 | 8687 | -3.75 -3.00 | -0112 |
| .0 | | 0975 | -2.25 | -0075 -0110 | .025 | 1792 | -2.25 | .0108 .0139 | .025 | 2583 | -2.25 | .0141 | .025 | 2995 5332 | -2.25 -1.50 | -0150 -0156 |
| .0 | 60 | 4520 | -1.25 | .0117 | .060 | 5022 | -1.25 | - 0686 | .060 | 5605 | -1.25 | .0082 | .060 | 6103 | -1.25 | -0113 |
| - 0 | | 8573 | -1.00 | - 0068 | -100 | 9080 9478 | -1.00 | 0135 | - 100 | 9362 | 75 | 6114 | -100 | 9431 -1.0175 | -1.00 75 | 0127 |
| • 1 | 40 | 9237 | 50 | 0235 | -140 -180 | -1.0139 | 50 | 0337 0711 | -140 | -1.0733 -1.0618 | 25 | 0332 | -140 | -1.0985 -1.0947 | 50 | 0357 0792 |
| . 2: | 98 | 9075 | .00 | 1106 | .220 | 9992 | .00 | 1384 | .220 | -1.0685 | .00 | 1527 25 0 9 | .220 | -1-1113 | | 1598 |
| .2 | 00 | 8975 | ·25 | 1728 | .269 | -1.0240 | ·25 | 2552 | -300 | -1. 094 5 | .50 | 3042 | .260 | -1.1287 | .25 | 2634 |
| • 3 | | 8994 | 1.00 | 1626 | -340 -380 | -1.0020 | 1.00 | 1912 | -340 -380 | -1.0910 | 1.00 | 2188 | - 348 - 388 | -1.1325 | 1.00 | 2319 |
| . 4 | 20 | 8986 | 1.25 | 1269 | . 420 | -1.0219 | 1.25 | 1 462 | - 420 - 460 | -1.0990 | 1.25 | 1663 | - 420 | -1-1436 | 1.25 | 1727 |
| . 5 | | 6211 | 1.50 | 0953 | - 460 - 500 | -1.0295 | 1.50 | 1126 | - 500 | -1-1157 | 1.75 | 0926 | · 460 | -1.1621 | 1.75 | 1274 |
| • 5 | | 6467 | 2.00 | 0611 | • 540 • 580 | -1.0113 | 2.00 | 0760 | • 540 • 580 | -1.1353 -1.1534 | 2.00 | 0793 | • 540 • 580 | -1.1676 | 2.25 | 0778 0690 |
| . 6 | 20 | 7973 | 2.50 | 0479 | - 620 | 6019 | 2.50 | 8556 | · 620 | 8565 4735 | 2.50 | 0579 | . 628 | 5865 | 2.58 | 0607 |
| . 7 | | 5327 2893 | 2.75 | 0477 | • 700 • 800 | - · 4815 | 2.75 | 0496 | -800 | 2707 | 3 - 50 | 0486 | -700 -800 | 4674 | 2.75 | - · 0 60 5 |
| .9 | | 0669 | -5.25 -4.50 | 0039 | .900 .950 | 0719 -0174 | -5.25 -4.50 | 0000 | -900 -950 | 0917 | -5.25 -4.50 | 0037 | ·966 | 1974 | -5.25 -4.50 | 0007 0013 |
| .9 | 75 | .0640 | -3.75 | .0032 | .975 | .0570 | -3.75 | .0053 | .975 1.000 | .0159 .0508 | -3.75 -3.00 | .0060 | .975 | 0837 | -3.75 | .0046 |
| 1.0 | 00 | .0888 1.1486 | -3.00 | .0114 .0158 | 1.000 | ·0777 | -3.00 | .0126 | -000 | 1.1416 | -2.25 | .0280 | 1.600 | 1.1551 | -3.00 | ·0157 |
| - 01 | | .2741 | -1.50 | .0287 .0355 | · 004 | -4061 -1768 | -1.50 | .0346 | -888 | · 5020 | -1.25 | .0384 | -004 -008 | ·5810 ·3623 | -1.50 -1.25 | · 8429 |
| . 0: | 20 | 0444 | -1.00 | -0407 | .020 | .0751 | -1.00 | .0474 | .020 .050 | ·1556 | -1-00 | .0511 | .020 | ·2241 | -1.00 | .0599 |
| - 0 | 00 | .0183 1071 | 75 | .0421 | ·050 | ·0907 | 75 | ·0503 | -100 | 0004 | 50 | .0650 | -100 | .0389 | 75 | • 6625 • 6696 |
| .1 | | 2141 | 25 | .0440 | ·150 | 1544 | 25 | ·0601 ·0597 | -150 | 1130 | 25 | .0682 | -150 | 0784 | 25 | ·6739 ·6736 |
| . 5 | 50 | 4143 | .25 | .0393 | -250 | 3521 | .25 | .0513 | ·250 | 3116 | ·25 | .0658 | -250 | 2787 | .25 | -0689 |
| . 3 | 50 | 4126 | • 50 • 75 | .0400 | · 350 | 3673 2392 | · 50 | · 0525 | . 450 | 2215 | .75 | .0599 | • 350 • 450 | 2130 | • 5 0 | .8626 |
| • 5 | | 0892 | 1.00 | .0410 | • 550 • 650 | 0723 -0869 | 1.00 | ·0511 | · 550 | 0615 -0954 | 1.25 | .0531 | · 550 | 0670 -0831 | 1.00 | -0568 -0516 |
| . 7 | 50 | ·2307 | 1.50 | .0314 | .750 .850 | ·2352 | 1.50 | .0368 .0255 | -750 -850 | ·2370 | 1.50 | .0407 | .750 .850 | ·2282 | 1.50 | .0360 .0283 |
| 1.00 | | .0888 | 2.00 | .0158 | 1.000 | .0777 | 2.88 | .0135 | 1.000 | .0508 | 8.00 | 0154 | 1.888 | 8768 | 2.00 | . 81 68 |
| | | | 2.25 | 0079 | | | 2.25 | 0097 | | | 2.25 | 0046 | | | 2.25 | 0087 0015 |
| | | | 2.75 | .0008 | | | 2.75 | .0004 .0045 | | | 2.75 | .0061 | | | 2.75 | -0112 |
| | | | 3-30 | .0055 | | | 3.30 | | | | | | | | 0.00 | -0110 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | ır. | MACH | E- 6*RE | AL PHA | WR. | MACH | E-6+RE | AL PHA | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6*RE | AL PHA |
| | NR• 493 | MACH -697 | E-6*RE | | NR. 2498 | MACH -761 | | ALPHA -2.00 | NR - 2491 | MACH -768 | E-6*RE 5.99 | ALPHA | NR. 2492 | MACH . 761 | E-6*RE 5.99 | AL PHA 3.00 |
| | 493 | | | | | | | | | | | | | | | |
| 2. | 493 | .697 | 5.80 XW/L | -2.00 CPV | 2490 X/L -800 | .761 CP 1.0231 | 5.98 XV/L -5.25 | -2.00 CPV 0105 | 2491 X/L | .768 CP 1-1552 | 5.99 XV/L -5.85 | .75 CPV | 2492 X/L | •761 CP | 5.99 XV/L -5.25 | 3.00 CPW 0107 |
| ×/1 | 493 | .697 CP .9882 | 5.88 XW/L -5.25 -4.58 | -2.00 CPV 0072 0072 | 2498 X/L | .761 CP 1.0231 1.0012 | 5.98 XV/L -5.25 | -2.00 CPV 0105 0077 | 2491 X/L | .768 CP 1-1552 -6731 | 5.99 XV/L -5.25 -4.50 | .75 CPV 0109 0078 | 2492 X/L | • 761 CP | 5.99 XV/L | CPW01070036017 |
| X/I • 96 • 90 • 90 | 493 | .697 CP .9882 .9725 .7474 | 5.88 XW/L -5.25 -4.50 -3.75 -3.00 | -2.00 CPW 0072 0072 0072 | 2490 X/L .000 .004 .008 .015 | .761 CP 1.0231 1.0012 .7827 .5300 | 5.98 XV/L -5.25 -4.50 -3.75 -3.60 | -2.06 CPW 0105 0077 0034 | 2491 X/L .006 .004 .006 .015 | .769 CP 1-1552 -6731 -3846 | 5.99 XV/L -5.25 -4.50 -3.75 -3.00 | .75 CPV 6169 6078 6016 | 2492 X/L .000 .004 .008 .015 | .761 CP 1.1449 .4119 .1823 | 5.99 XW/L -5.25 -4.50 -3.75 -3.00 | 3.00 CPW 0107 0036 0017 0125 |
| X/I | 993 | .697 CP .9882 .9725 | 5.80 XW/L -5.25 -4.50 -3.75 | -2.00 CPV 0072 0072 | 2498 X/L .006 .004 .015 .025 | .761 CP 1.0231 1.0012 .7827 .5300 .2977 | 5.98 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | -2.00 CPV 0105 0077 0034 0016 0050 | 2491 X/L .006 .006 .015 .025 | .768 CP 1.1552 .6731 .3546 .1866 .1359 | 5.99 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | .75 CPV 0169 0078 0016 .0016 .0052 | 2492 X/L .000 .904 .015 .025 | .761 CP 1.1449 .4119 .1823 1769 4697 | 5.99 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | 3.00 CPW 0107 0036 0017 0125 0181 0224 |
| X/I .04 .04 .04 .05 | 993 994 98 15 25 | .697 CP .9882 .9725 .7474 .4930 .2541 0140 | 5.86 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | CPW00720072007200720074 | 2498 X/L .000 .004 .005 .015 .025 .040 .060 | .761 CP 1.0231 1.0012 .7827 .5300 .2977 | 5.98 XV/L -5.25 -4.50 -3.75 -3.60 -2.25 | -2.00 CPV 0105 0077 0034 .0010 .0050 .0119 | 2491 X/L .888 .804 .805 .815 .825 .846 .858 | .768 CP 1.1552 .6731 .3646 .1886 | 5.99 XV/L -5.25 -4.58 -3.75 -3.66 -2.25 | .75 CPV 8189 6078 6016 .6018 | 2492 X/L .000 .904 .008 .015 .025 .040 .068 | .761 CP 1.1449 .4119 .1823 1789 4897 5384 7957 | 5.99 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | 3.00 CPW 0107 0036 .0017 .0125 -0181 .0224 .01141 |
| X/I .06 .06 .09 .09 .09 | 993 994 98 15 25 99 99 | .697 CP .9882 .9725 .7474 .4930 .2541 -0140 -1524 -3146 | 5.88 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.26 | -2.00 CPW 0072 0072 0072 0021 .0064 .0079 .0064 .0012 | 2490 X/L .000 .004 .005 .015 .025 .040 .066 .066 | .761 CP 1.0231 1.0012 .7827 .5300 .2977 .0311 -1196 -3223 -3662 | 5.98 XW/L -5.25 -4.58 -3.75 -3.86 -2.25 -1.56 -1.25 -1.26 -75 | -2.86 CPV 8185 8877 8834 8618 8658 8119 6137 6141 | 2491 X/L .886 .804 .805 .815 .825 .846 .866 .866 .186 | .768 CP 1.1552 .6731 .3546 .1359 3546 4687 4687 | 5.99 XV/L -5.25 -4.58 -3.75 -3.06 -2.25 -1.56 -1.25 -1.25 | .75 CPV 6169 6076 6016 6016 6018 6015 6015 | 2492 X/L -000 -004 -008 -015 -025 -040 -068 -080 -100 | .761 CP 1.1449 .4119 .1023 1769 4897 6384 7957 9577 | 5.99 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | 3.00 CPW 0107 0036 .0017 .0125 .0181 .0224 .0141 |
| X/I -96 -90 -90 -90 -90 -91 -11 | 993 993 994 988 155 255 409 999 999 999 | .697 CP .9882 .9725 .7474 .4930 .2541 -0140 -1524 -3146 -3593 -3707 | 5.80 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 75 50 | -2.00 CPW 0072 0072 0021 0021 0064 0079 0084 0012 0012 | 2498 X/L .886 .864 .815 .825 .848 .866 .186 .186 | .761 CP 1.0231 1.0012 .7827 .5300 .2977 .0311 -1190 -3223 -3662 -3899 -4226 | 5.98 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.907550 | -2.00 CPW 0105 0077 0034 0019 0137 0141 0169 0056 0077 | 2491 X/L .888 .884 .805 .815 .825 .846 .859 .188 .188 | .768 CP 1.1552 .6731 .3546 -1359 3546 4687 8629 9254 9754 | 5.99 XV/L -5.25 -4.50 -3.75 -1.36 -1.25 -1.25 -1.25 -1.25 -1.25 -2.25 | .75 CPV 0109 0016 0016 0018 0015 0135 0297 0646 | 2492 X/L -000 -004 -008 -015 -025 -040 -060 -140 -180 | .761 CP 1.1449 .4119 .1823 .1789 4897 6384 .7957 9577 -1.6631 -1.1657 | 5.99 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.507550 | CPW - 0107 - 0036 - 0017 - 0125 - 0181 - 0224 - 0141 - 0097 - 0107 - 0346 |
| X/I -94 -94 -93 -93 -93 -94 -94 -94 -94 -94 -94 -94 -94 -94 -94 | 493 | .697 CP .9882 .9725 .7474 .4930 .2541 -0140 -1524 -3146 -3146 -3707 | 5.88 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.58 -1.25 -1.98 75 | -2.00 CPW 0072 0072 0072 00621 .0066 .0064 .0079 .0084 0012 | 2490 X/L .000 .004 .005 .015 .025 .040 .060 .180 .180 .226 | -761 CP 1-0231 1-0012 -7827 -5300 -2977 -0311 -1119 -3223 -3662 -3662 -4445 -44476 | 5.98 XW/L -5.25 -3.75 -3.60 -2.25 -1.50 -1.25 -1.60 -7.50 -2.55 -0.00 -0.0 | -2.00 CPW 0105 0077 0034 0010 0197 0141 0109 0056 0077 0327 0567 | 2491 X/L .008 .005 .015 .025 .040 .060 .180 .180 .226 | .768 CP 1.1552 .6731 .3546 .1359 3546 4687 8829 9254 9728 99728 99728 | 5.99 XV/L -5.25 -4.56 -3.75 -3.60 -2.25 -1.50 -1.23 -1.60 75 25 80 25 | .75 CPV 0189 0076 0016 0018 0018 0015 0135 0135 0135 0135 0135 0135 0135 0135 0135 0135 0135 0135 | 2492 X/L -000 -004 -008 -015 -025 -040 -080 -140 -180 -220 -260 | .761 CP 1.1449 .4119 .1823 1789 6384 7957 9577 -1.8631 -1.1657 -1.1679 -1.1869 | 5.99 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -2.55 -0.00 | CPW |
| X/I -96 -96 -96 -96 -96 -11 -11 -12 -22 -33 | 993 994 984 986 998 998 998 998 998 998 | .697 CP .9882 .9725 .7474 .4938 .25410140152431463593378739194018 | 5.88 XW/L -5.25 -4.50 -3.75 -3.08 -2.25 -1.50 -1.25 -1.50 75 50 50 50 50 50 50 50 5 | CPW0872087208720892089608790814083804940814 | 2490 X/L .000 .004 .005 .015 .020 .040 .060 .100 .140 .220 | .761 CP 1.0231 1.0012 .7827 .5300 .2977 .0311 -1190 -3223 -3662 -3899 -4226 | 5.98 XW/L -5.25 -4.58 -3.75 -3.86 -2.25 -1.58 -1.25 -1.68 -2.5 | -2.66 CPW 6165 6077 6034 6018 6137 6141 6169 6077 6327 6327 63795 | 2491 X/L .000 .004 .005 .015 .025 .040 .000 .100 .100 .120 | .768 CP 1.1552 .6731 .3846 .1886 -3487 -9254 -9728 -9728 -9668 -9668 | 5.99 XV/L -5.25 -4.50 -3.75 -1.36 -1.25 -1.25 -1.25 -1.25 -1.25 -2.25 | .75 CPV 6169 6078 6018 .6018 .6018 .6018 6135 6135 6297 1271 1963 2216 | 2492 X/L .000 .004 .005 .015 .025 .025 .040 .100 .140 .140 .220 .260 .340 | .761 CP 1.1449 .4119 .1823 .1769 -4897 .6384 .7957 -957 -1.16637 -1.1679 -1.1869 -1.2895 -1.2216 | 5.99 XW/L -5.25 -4.58 -3.75 -3.89 -2.25 -1.58 -1.25 -1.68 -7.58 -25 -25 -58 | CPW |
| X/I - 00 - 00 - 00 - 00 - 00 - 00 - 00 - 0 | 493 | .697 CP .9882 .9725 .7474 .4930 .2541014831463193319739194018402740884048 | 5.88 XW/L -5.25 -4.50 -3.75 -3.08 -2.25 -1.50 -1.20 -7.75 50 0.25 5.50 .25 5.50 | - 2.66 CPW 6672 6672 6672 6621 .6666 .6679 .6612 6932 6146 6494 64 | 2490 X/L .000 .004 .008 .015 .025 .040 .100 .180 .226 .300 .340 .340 | .761 CP 1-8231 1-8812 -7827 -5388 -2977 -3111 -1198 -3223 -3662 -3899 -4226 -4445 -4476 -4552 -4529 -4656 | 5.98 XV/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.58 -1.75 -58 -25 -1.58 -25 -1.58 | -2.66 CPW 0105 0077 0034 0018 0119 0119 0177 0327 0327 0327 0326 0379 0366 0379 0379 0366 0379 | 2491 X/L -808 -808 -815 -825 -946 -186 -186 -186 -186 -226 -386 -386 | .768 CP 1.1552 .6731 .3846 .1896 -1359 -3846 -4687 -9828 -99728 -99728 -9946 -9463 -9463 -9463 | 5.99 XV/L -5.25 -4.58 -3.75 -3.68 -1.85 -1.86 -7.55 -2.55 -2.55 -2.55 -3.68 -2.55 -3.68 -2.55 -3.68 -3.75 -3.68 -3.75 -1.8 | .75 CPV 0109 0078 0016 0018 0018 0135 0135 0135 01271 1963 2316 1271 1963 | 2492 X/L .000 .004 .005 .015 .025 .040 .080 .100 .180 .220 .260 | .761 CP 1.1449 .4119 .1823 .1769 -4897 -5354 -7957 -1957 -1.1657 -1.1657 -1.1657 -1.1657 -1.1659 -1.2895 -1.2895 | 5.99 XV/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.58 -1.75 -255 -255 -2.56 -2.57 -2.58 -2.57 -2.58 -2.57 -2.58 | CPW |
| X/I -96 -96 -97 -99 -99 -91 -11 -11 -22 -23 -33 -31 -41 | 993 993 994 998 999 999 999 999 999 999 999 999 | .697 CP .9882 .9725 .7474 .4930 .2541 -3146 -3593 .3787 -3919 -4818 -4827 -4888 -4123 -4226 | 5.88 XW/L -5.25 -4.50 -3.00 -2.25 -1.50 -1.50 75 25 25 25 25 25 25 25 2 | -2.66 CPV 8872 8872 8872 8872 8864 8879 8812 9813 8138 | 2499 X/L .000 .004 .005 .015 .025 .040 .160 .160 .180 .226 .340 | .761 CP 1.0231 1.0012 .7827 -5300 2977 -0311 -1190 -3223 -3692 -4256 -4455 -4456 -4656 -4654 -46 | 5.98 XV/L -5.25 -4.58 -3.68 -2.25 -1.58 -1.25 -1.58 -2.55 -5.5 -2.55 -2 | -2.66 CPV -8185 -0877 -9834 -0818 -0856 -0119 -0137 -0141 -0189 -0877 -0327 -0327 -0356 -0876 -0876 -0876 -0876 | 2491 X/L .006 .014 .005 .015 .025 .040 .106 .116 .116 .226 .346 .346 .346 .346 .346 .346 | .768 CP 1.1552 .6731 .3866 .1886 -1359 -3846 -4657 -9254 -9728 -9728 -9463 -9463 -9463 -9452 -9553 | 5.99 XV/L -5.25 -4.58 -3.75 -3.88 -1.25 -1.58 -1.25 -3.88 -1.25 -1.58 -1.25 -1.58 -1.25 -1.58 -1.25 -1.58 -1.25 -1.58 -1.58 -1.58 -1.58 -1.58 -1.58 -1.58 | .75 CPW 0109 0078 0016 0018 0018 0135 0135 0135 01271 1963 2316 1773 1788 1773 1386 1386 1386 | 2492 X/L .000 .000 .000 .000 .000 .000 .000 .0 | .761 CP 1.1449 .4119 .1023 .1789 .4897 .5394 .7957 -1.6631 1.1657 -1.1669 -1.2816 -1.2216 -1.2216 -1.2218 -1.2189 -1.2189 | 5.99 XV/L -5.25 -4.58 -3.68 -2.25 -1.58 -1.58755825 -1.6825 -1.6825 -1.68 | CPW |
| X/I -94 -94 -99 -99 -91 -11 -12 -22 -33 -31 -44 -44 | | .697 CP .9882 .9725 .7474 .4930 .2541 -3146 -31593 -3767 -3919 -4812 -4827 -4888 -4948 -4123 -4326 -4326 | 5.88 XW/L -5.25 -4.58 -3.75 -3.08 -2.25 -1.25 -1.25 75 50 25 .50 .75 1.00 75 1.00 75 | -2.68 CPV - 0872 - 0872 - 0872 - 0872 - 0884 - 0812 - 0812 - 0814 | 2496 X/L -000 -004 -005 -015 -025 -040 -058 -100 -140 -220 -380 -380 -420 -380 -420 -580 | .761 CP 1.0231 1.0012 .7827 .5308 .2977 .0311 .1198 .3223 .3662 .4359 .4226 .4455 .4455 .4456 .4552 .4559 .4658 .4758 .4 | 5.98 XV/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.58 -1.55 -5.98 -7.55 -5.98 -7.55 -1.68 -7.55 -1.68 -7.55 -7.50 - | -2.66 CPW -8185 -0877 -0834 -8189 -0141 -9189 -0856 -0877 -0927 -0756 -0877 -0757 -0757 -0757 | 2491 X/L .008 .004 .006 .015 .025 .040 .160 .160 .180 .226 .340 .365 .426 .386 | .768 CP 1.1552 .6731 .3846 .1359 .3846 .1359 .3844 .9728 .9254 .9728 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9563 .94 | 5.99 XV/L -5.25 -4.50 -3.75 -3.66 -2.25 -1.50 -1.85 -1.60 -755 -50 -255 -1.60 -755 -1.60 -755 -2.60 | .75 CPW010900760076001600180015013501350197127113841373188413861088 | 2492 X/L .000 .004 .005 .015 .025 .040 .080 .140 .180 .260 .340 .340 .340 .340 .340 .540 | .761 CP 1.1449 -4119 -1823 -1.1823 -1.1897 -6.384 -7.9577 -1.96531 -1.1657 -1.2895 -1.2216 -1.2258 -1.2189 -1.2258 -1.2189 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 -1.2895 | 5.99 XW/L -5.25 -4.58 -3.75 -3.08 -2.25 -1.50 -1.25 -1.6075507575 | CPW |
| X/I .04 .09 .09 .09 .09 .11 .11 .11 .22 .33 .33 .33 .44 .44 .55 .55 | 993 944 944 955 966 966 966 966 966 966 966 966 966 | .697 CP .9882 .9725 .7474 .4936 .25416149315431543159331673199402740884048412341234123412341234123 | 5.88 XW/L -5.25 -4.58 -3.75 -3.08 -2.25 -1.50 -1.25 -2.50 -2.50 -1.50 -2.50 - | -2.68 CPV - 0872 - 0872 - 0872 - 0864 - 0864 - 0864 - 0812 - 0818 - 0934 - 0146 - 0553 - 0474 - 0447 - 04487 | 2498 X/L .800 .804 .805 .815 .825 .848 .869 .180 .180 .220 .249 .340 .340 .340 .350 .420 .350 | .761 CP 1.0231 1.0012 .7827 -5300 2977 -0311 -1100 -3223 -3662 -3223 -3662 -4455 -4476 -4552 -4692 -46824 -4991 -5199 -5728 | 5.98 XV /L -5.25 -4.58 -3.75 -3.68 -2.25 -1.58 -2.25 -2.59 -7.59 -2.51 -6.69 -2.51 -5.75 -6.69 -7.75 | -2.66 CPW01850077003400180058011901410189014701560077015701671017901 | 2491 X/L .888 .884 .885 .815 .825 .848 .889 .189 .189 .228 .248 .388 .228 .348 .358 .429 .438 .558 | .768 CP 1.1552 .6731 .3846 .1986 .1359 3846 468 925 925 925 925 9468 9468 9466 945 9468 9468 9468 9468 9468 9468 9468 | 5.99 XV/L -5.25 -4.50 -3.75 -3.06 -2.25 -1.50 -2.25 -3.06 -7.55 -3.00 -2.55 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 | .75 CPW0109007600760016001800180135013501350297066412711983138619731386198313861983 | 2492 X/L -000 -004 -008 -015 -025 -040 -160 -140 -140 -140 -340 -340 -340 -360 -460 -560 -560 | .761 CP 1.1449 -4119 -1823 -179538976384 -77957 -1.1679 -1.1679 -1.1869 -1.2216 -1.2216 -1.2218 -1.2218 -1.2218 -1.2238 -1.2218 -1.2258 -1.2218 | 5.99 XV/L -5.25 -4.58 -3.75 -3.06 -2.25 -1.50 -1.25 -2.50 -7.50 -1.25 -1.50 | CPW |
| X/I -04 -09 -09 -09 -09 -11 -11 -22 -31 -31 -41 -41 -55 -55 -55 -66 | 993 984 985 985 986 986 986 986 986 986 986 986 986 986 | .697 CP .9882 .9725 .7474 .4936 .254101493194319431943194408840844123423142842884948 | 5.88 XW 2.5 -4.50 -3.75 -3.08 -2.25 -1.25 -1.25 -2.25 -1.25 -2.25 | -2.66 CPV -0872 -0872 -0872 -0821 -0864 -0812 -0146 -0814 -0914 -0 | 2498 X/L .800 .004 .005 .015 .025 .025 .040 .060 .140 .180 .220 .240 .340 .350 .420 .550 .550 .580 | .761 CP 1.8231 1.8812 .7827 -5388 2977 -6311 -1198 -3223 -3662 -3899 -4226 -4455 -4476 -4455 -4476 -4552 -4599 -5728 -6953 -5926 | 5.98 XV /L -5.25 -4.58 -3.75 -3.86 -2.25 -1.26 -1.25 -2.25 -2.25 -1.26 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 | -2.66 CPV -8185 -0877 -0834 -0818 -0819 -0119 -0137 -0141 -0189 -0856 -0877 -0557 -0816 -077 -0517 -0513 -0418 -0395 -0359 -0359 | 2491 X/L .888 .885 .815 .825 .825 .846 .866 .186 .186 .226 .346 .346 .346 .356 .428 .428 .428 .428 .428 .428 .428 .428 | .768 CP 1.1552 .6731 .3846 .1886 .1359 .3846 .1359 .3846 .99728 .99728 .99728 .9968 .9968 .9953 .9463 .9463 .9463 .9463 .9463 .9464 | 5.99 XV/L -5.25 -4.59 -3.75 -3.09 -2.25 -1.50 -1.25 -1.60 -7.55 -2.50 -2.55 -1.00 -7.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 | .75 CPW010900760016001600180015013501350135013718641271196323161773186417731864177318641366102600630063 | 2492 X/L .000 .004 .008 .015 .025 .040 .140 .180 .220 .260 .340 .340 .389 .420 .456 .580 .580 | .761 CP 1.1449 .4119 .1823 -1.7956384 .79579577 -1.1679 -1.1679 -1.1869 -1.2216 -1.2216 -1.2248 -1.2248 -1.2248 -1.235 -6632 -6632 -55728 | 5.99 XV /L -5.25 -4.58 -3.75 -3.80 -2.25 -1.26 -1.25 -2.25 -2.25 -1.20 -7.58 -2.25 | CPW |
| X/I -96 -90 -90 -90 -91 -11 -11 -12 -22 -33 -33 -34 -44 -55 -55 -56 -65 -76 | 993 944 944 955 966 966 966 966 966 966 966 | .697 CP .9882 .9725 .7474 .4930 .2541 -0140 -1524 -3146 -3146 -31707 -4068 -4027 -4088 -4123 -4231 -4231 -4231 -4231 -4231 -4231 -4231 -4231 -4231 -4231 -4231 -4231 -4231 | 5.88 XW/L -5.25 -4.575 -3.08 -2.25 -1.25 -1.2675550 1.25 1.5025 2.57 1.00 2.25 2.50 2.57 3.50 2.75 3.50 | -2.66 CPV 0872 0872 0872 0864 0879 0864 0879 0148 0148 0148 0487 0487 0487 0487 0487 0388 0499 0487 0487 0487 0487 0398 0499 | 2498 X/L .808 .004 .008 .015 .025 .040 .060 .140 .180 .226 .340 .340 .350 .460 .590 .590 .590 .590 | .761 CP 1.8231 1.8812 .7827 -5388 2977 -6311 -1198 -3223 -3629 -4226 -4352 -4452 -4552 -4552 -4552 -4552 -5128 -5926 -55128 -2837 -28637 | 5.98 XW /L -5.25 -4.58 -3.75 -3.86 -2.25 -1.58 -2.25 -1.59 -2.59 -2.59 -2.59 -2.59 -2.59 -2.59 -2.59 -5.25 -5.25 | -2.66 CPV -8185 -0877 -0834 -0819 -0856 -0119 -0856 -0141 -0189 -0856 -0877 -0557 -0856 -0770 -0817 -0817 -0817 -08186 -0871 -08186 -0873 -08186 -0873 -08186 -0873 -08186 -0873 -08186 -0873 | 2491 X/L .000 .000 .000 .015 .025 .040 .060 .140 .180 .226 .340 .340 .356 .426 .500 .500 .500 .500 .500 .500 .500 .50 | .768 CP 1.1552 .6731 .3846 .1886 .1359 .3846 .4857 .9852 .99728 .99728 .9968 .9968 .9968 .9953 .9668 .9463 .9463 .9464 .9278 .9688 .9534 .9688 .9534 .96888 .96888 .9688 .9688 .9688 .9688 .9688 .9688 .9688 .9688 .9688 .9688 .9688 .9688 .9688 | 5.99 XV/L -5.25 -4.50 -3.75 -3.06 -2.25 -1.50 -1.25 -2.25 -1.50 -2.25 -1.50 -2.25 -2.50 | .75 CPV0109007600760076008201150058001501350297064612711963231617731804136610800587071606830513 | 2492 X/L .000 .004 .008 .015 .025 .040 .160 .140 .120 .260 .340 .420 .420 .450 .580 .580 .580 | .761 CP 1.1449 -4119 -1823 -1799 -4897 -6338 -7957 -957 -1.1657 -1.1659 -1.2216 -1.2258 -1.2189 -1.2258 -1.2189 -1.25379 -6832 -68532 -5728 -5379 -473845 -32865 | 5.99 XW /L -5.25 -4.58 -3.75 -3.88 -2.25 -1.26 -1.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 | CPW - 0107 - 0036 - 0017 - 0181 - 0181 - 0181 - 0197 - 0184 - 0197 - 0197 - 01346 - 0187 - 27468 - 2463 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 - 11876 |
| 2: X/1 | 993 984 985 955 988 988 988 988 988 988 988 988 | .697 CP .9882 .9725 .7474 .4930 .2541 -6146 -1524 -3146 -3146 -31767 -4088 -4183 -4928 -4123 -4231 -4231 -4232 -49497 -4967 -2794 -6721 | 5.88 XW -5.25 -4.57 -3.825 -1.25 | -2.66 CPW 0872 0872 0872 0864 0864 0879 0866 0879 0148 | 2498 X/L -000 -004 -008 -015 -025 -040 -160 -160 -160 -160 -160 -160 -160 -16 | .761 CP 1.0231 1.0812 .7827 .5388 .2977 .6311 .11198 .3223 .3662 .3899 .4226 .4445 .4476 .4552 .4652 .4691 .5728 .6653 .5928 .5128 .5128 .28537 .86458 | 5.98 XW/L -5.25 -4.58 -2.25 -1.26 -1.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -2.35 -2.35 -2.35 -3.35 -3.35 -3.55 -4.58 | -2.66 CPV -8165 -8677 -8634 -8616 -8656 -8119 -8141 -8189 -8856 -8877 -8327 | 2491 X/L -008 -008 -015 -025 -040 -140 -189 -120 -140 -189 -260 -360 -360 -360 -360 -370 -360 -580 -580 -580 -580 -580 -580 -580 -58 | .768 CP 1.1552 .67316 .1356 .1359 .3846 .1359 .3846 .9728 .9945 .9945 .9463 .9 | 5.99 XV/L -5.25 -4.58 -3.75 -3.825 -1.58 -1.59 -1.25 -1.68 -2.55 -1.68 -2.55 -2.55 -3.56 -3.55 -3.56 -3.55 -3.56 -3.55 -3.56 | .75 CPW01090078001600160016001501350135013501371963127119631366127710601366 | 2492 X/L .000 .000 .000 .000 .000 .000 .000 .0 | .761 CP 1.1449 .4119 .1823 -1.789 -4897 -6.6384 -7.9577 -9.577 -1.8631 -1.1657 -1.2216 -1.2258 -1.2258 -1.2189 -1.2189 -1.21899 -6.632 -5.5728 -5.5728 | 5.99 XW/L -5.25 -4.58 -3.75 -3.08 -2.25 -1.08 -1.25 -1.08 -2.58 -1.09 -2.58 -1.09 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 | CPW0107 -0036 -0017 -0181 -0181 -0181 -0181 -0197 |
| 2. X // | 993 - 994 - 944 - 955 - 956 - | .697 CP .9882 .9725 .7474 .4930 .2541 -8148 -3146 -3146 -3178 -3787 -4868 -4828 -4921 -4921 -4927 -4967 -4972 -4972 -4972 -4972 -4978 | 5.88 XW /L -5.25 -4.59 -3.25 -1.25 -1.25 -1.26 -2.25 -1.26 -2.50 -3.75 -3.76 | -2.66 CPW 0872 0872 0872 0864 0864 0879 0866 0879 0146 | 2498 X/L -000 -004 -008 -016 -025 -025 -036 -186 -186 -186 -186 -226 -366 -366 -366 -366 -366 -366 -36 | .761 CP 1.0231 1.0812 .7827 .3382 .2977 .6311 .1198 .3262 .3699 .4226 .4445 .4476 .4552 .4529 .4666 .4824 .4991 .5198 .5728 .6853 .5926 .5128 .6926 | 5.98 XW/L -5.25 -4.58 -3.75 -3.68 -1.25 -1.26 -1.25 -1.26 -2.55 -1.26 -2.56 -2.55 -1.26 -2.56 -3.75 -3.58 | -2.66 CPV -8185 -8677 -8634 -8618 -8619 -8617 -8141 -8856 -8677 -8557 -8556 -8775 -8557 -8556 -8755 -8359 -8359 -8359 -8359 -8359 -8359 -8359 -8359 -8359 -8359 -8359 | 2491 X/L -008 -008 -018 -025 -040 -186 -186 -186 -186 -186 -186 -186 -186 | .768 CP 1.1552 .6731 .3646 .1359 3686 1359 3686 926 926 926 926 9463 9463 956 95 | 5.99 XV/L -5.25 -4.58 -3.75 -3.825 -1.59 -1.25 -1.68 -2.25 -3.55 -1.68 -2.25 -3.55 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 -3.58 | .75 CPW010900780016001600180015001500150135029706461271196323161773180410200567071606030518051805180619 | 2492 X/L -000 -008 -015 -025 -040 -080 -180 -180 -180 -180 -180 -180 -18 | .761 CP 1.1449 .4119 .1823 -1789 -4897 -6394 -7957 -9577 -18631 -1.1657 -1.1657 -1.1657 -1.2216 -1.2249 -1.2259 -1.2216 -1.2249 -1.2259 -1.3245 -3.3245 -3.3266 -3.3266 -3.3266 | 5.99 XW/L -5.25 -4.58 -2.25 -1.88 -2.25 -1.89 -2.25 -2.58 -2.58 -2.58 -2.58 -2.58 -3.75 -3.88 | CPW0107 -0036 -0017 -0125 -0128 -0128 -0128 -0128 -01297 -0346 -1893 -1874 -1386 -1466 -1467 -1386 -1467 -1386 -1467 -1386 -1467 -1467 -1467 -1573 -0682 |
| 2.X/1 | 993 984 985 986 988 988 988 988 988 988 988 988 988 | . 697 CP . 9882 . 9725 . 7474 . 4936 . 2541 . 6148 . 3146 . 31787 . 3197 . 3919 . 4882 . 4848 . 4123 . 4231 . 4231 . 4236 . 4588 . 4948 . 4894 . 4897 . 4997 . 2794 . 63186 | 5.88 XW -5.25 -4.505 -3.05 -3.025 -1.205 -1.206 -2.50 | -2.66 CPV 6872 0872 0872 0864 0864 0879 0813 | 2498 X/L .000 .008 .010 .025 .025 .026 .006 .100 .140 .180 .226 .206 .308 .308 .409 .509 .509 .509 .509 .509 .509 .509 .5 | .761 CP 1.021 1.0812 .7827 .3887 .2977 .8311 -1198 .3223 -3462 .4445 -4455 -4476 -4552 -4529 -4666 -4852 -5129 -5128 -5128 -5128 -6953 -6953 -6969 -6824 -1269 | 5.98 X \(\subseteq \) -5.25 -4.59 -3.75 -1.25 -1.25 -1.25 -2.25 | -2.66 CPV -8185 -0877 -0834 -0818 -0858 -8119 -0858 -8141 -8185 -8877 -8567 -8795 -8667 -8795 -8671 -8513 -8418 -8395 -8359 -8359 -8359 -8354 -8856 -8866 -8866 | 2491 X/L -008 -008 -016 -025 -025 -026 -086 -186 -186 -186 -186 -226 -266 -286 -286 -286 -286 -286 -2 | .768 CP 1.1552 .6731 .3846 .1896 .13846 .1986 .9286 .9286 .9463 .9416 .9528 .9453 .9464 .9533 .9446 .9533 .9446 .9533 .9446 .9533 .9446 .9533 .9446 .9533 .9446 .9533 | 5.99 XV/L -5.25 -4.55 -3.45 -2.25 -1.28 -1.28 -1.25 -1.28 -2.55 -2.25 -3.56 -2.25 -3.56 -3.75 -3.75 -4.58 -3.75 -3.76 -3.76 | .75 CPW01090078001600160016001500150015001500170604127119632316177318041020060305180616060305180616060305180618061806180618061806180618 | 2 49 2 X/L | .761 CP 1.1449 .4119 .1823 -1789 -4897 -5394 -7957 -9577 -18631 -1.1657 -1.1657 -1.1657 -1.2216 -1.2249 -1.2259 -1.9979 -1.2895 -1.2249 -1.2259 -1.979 -1.3845 -3266 -3279 -4794 -3266 -3276 -1.2166 -1.2169 | 5.99 XW/L -5.25 -4.76 -3.825 -1.26 -1.25 -1.887525 -1.8875252525252525252 | CPW0107 -0036 -0017 -0121 -0121 -0121 -0121 -0131 -0224 -0340 -15746 -3460 -2460 |
| 2. X // | 993 994 954 955 966 966 966 966 966 966 966 966 966 | .697 CP .9882 .9785 .7474 .4936 .2541 -6149 -3146 -31593 -3707 -4818 -4823 -48231 -4231 -4221 - | 5.88 XW 2.585-4.585-1.5 | -2.66 CPV - 8872 - 8872 - 8872 - 8872 - 8864 - 8864 - 8818 - 8494 - 8614 - 8646 - 8629 - 8553 - 8494 - 8646 - 8629 - 8638 - 8494 - 8618 - 8646 - 8629 - 8646 - 8646 | 2498 X/L .000 .000 .000 .000 .000 .000 .000 . | .761 CP 1.021 1.0812 .7827 .3887 .2977 .8311 -1198 .3223 -3462 -4455 -4476 -4552 -4552 -4529 -4666 -4552 -5128 -5128 -5128 -6953 .9926 -1269 1.0821 -4685 -6746 | 5.98 XW /L -5.25 -4.58 -3.75 -3.82 -1.26 -1.26 -2.25 -1.26 -2.25 -1.25 -1.25 -2.25 -2.25 -2.25 -2.25 -2.25 -3.58 -3.75 -3.88 -3.75 -3.88 | -2.66 CPV -8195 -0877 -0834 -0618 -0658 -0119 -0137 -0141 -0897 -0877 -0836 -0877 -0836 -0878 | 2491 X/L -008 -008 -015 -025 -025 -026 -089 -149 -189 -220 -380 -385 -429 -549 -549 -549 -549 -549 -549 -549 -54 | .768 CP 1.1552 .6731 .3646 .1896 .1896 .1884 -9728 -9824 -9728 -9403 | 5.99 XV/L -5.25 -4.59 -3.75 -1.69 -1.25 -1.69 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -5.0 -2.25 -1.25 -1.25 | .75 CPV010900780016001800180018013501350127196323161773188413761786108806870687068706887068870688706887068870688706887068870688706887 | 2492 X/L .000 .004 .008 .015 .025 .040 .140 .180 .220 .260 .340 .340 .580 .580 .580 .580 .580 .580 .580 .58 | .761 CP 1.1449 .4119 .1823 -1.7956384 .7957 -1.1657 -1.1679 -1.2895 -1.2216 -1.2258 -1.2216 -1.2258 | 5.99 XV -5.25 -4.58 -3.75 -3.06 -2.25 -1.25 -2.50 -7.52 -1.25 -2.50 -7.52 -2.53 -2. | CPW - 0107 - 0036 - 00181 - 01281 - 01281 - 01281 - 01346 - 01393 - 27468 - 2463 - 1876 - 1373 - 01675 - 0176 - 01899 - 0176 - 01899 - 0176 - 01994 - 05384 |
| 2. X // | 993 984 815 986 988 988 988 988 988 988 988 988 988 | .697 CP .9882 .9725 .7474 .4930 .2541 -6148 -31543 -31767 -3919 -4616 -4123 -4231 -4231 -4221 -428 -4423 -4221 -428 -4968 | 5.88 XW 25.25 -4.575 -3.025 -1.25 -1.26 -2.25 -1.25 -1.25 -1.25 -2.25 -3.52 -4.57 -3.75 | -2.66 CPV - 0872 - 0872 - 0872 - 0864 - 0866 - 0866 - 0879 - 0818 - 0414 - 0614 - 0614 - 0649 - 08553 - 0494 - 0492 - 0492 - 0492 - 0492 - 0492 - 0493 - 0494 - 0492 - 0492 - 0493 - 0494 - 0492 - 0493 - 0494 - 0492 - 0493 - 049 | 2498 X/L -808 -808 -815 -825 -846 -868 -186 -186 -186 -186 -186 -186 -18 | .761 CP 1.0231 1.0012 .7827 .5308 .2977 .6311 -11198 -3223 -3462 -3489 -4256 -4455 -4455 -4455 -4559 -5128 -6053 -5128 -6051 -64685 -1269 -12687 -4685 -12681 -4685 | 5.98 XW/L -5.25 -4.58 -2.25 -1.26 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -2.25 -2.25 -3.26 -3.25 -3.26 -3.25 -4.58 | -2.66 CPV -8195 -0877 -9834 -0618 -0656 -0119 -0137 -0141 -0189 -0877 -0827 -0856 -0876 - | 2491 X/L -006 -008 -015 -025 -040 -066 -069 -146 -186 -186 -186 -186 -186 -186 -186 -18 | .768 CP 1.1552 .6731 .3846 .1886 .1886 .1986 .9254 .9728 .9254 .9728 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 .9463 | 5.99 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -2.50 -2.50 -2.50 -2.50 -2.50 -3.75 | .75 CPW01090076007600160018001501350135013501350137186461271138611773188413861088018801880188018801880188018801880188018801880188018801880188018801890188 | 2492 X/L .000 .000 .000 .000 .000 .000 .000 . | .761 CP 1.1449 -4119 -1823 -1.1823 -1.1897 -6.6384 -7957 -1.1657 -1.1657 -1.1657 -1.1657 -1.1659 -1.2216 -1.2216 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 -1.2258 | 5.99 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.26 -2.58 -2.25 -1.25 -1.25 -2.25 | CPW |
| 2. X // | 993 984 985 986 988 988 988 988 988 988 988 988 988 | .697 CP .9882 .9725 .7474 .4930 .2541 -6148 -31593 -3767 -3919 -4818 -4123 -4231 -4221 -4221 -428 -4423 -428 -4968 | 5.88 X ¥ 2.5 -4.76 -3.25 -1.25 -1.26 -1.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -1.25 -1.26 | -2.66 CPV - 6872 - 6872 - 6872 - 6864 - 6864 - 6864 - 6814 - 6814 - 6814 - 6849 - 6853 - 6849 - 6853 - 6849 - 6853 - 6846 - 6849 - 6853 - 6846 - 6849 - 6853 - 6846 - 6846 | 2499 X/L -000 -048 -015 -025 -040 -056 -106 -140 -156 -220 -340 -340 -340 -340 -340 -340 -340 -34 | .761 CP 1.0231 1.0812 .7827 -3308 -2977 -8311 -11198 -3223 -3662 -3489 -4226 -4445 -4552 -4552 -4552 -45199 -5128 -6053 -5128 | 5.98 XW/L -5.25 -4.58 -2.25 -1.26 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -3.75 -3.88 | -2.66 CPV -8195 -0877 -9834 -0618 -0656 -0119 -0137 -0141 -0189 -0877 -0827 -0856 -0876 - | 2491 X/L -008 -008 -015 -025 -040 -056 -106 -106 -106 -106 -106 -106 -106 -10 | .768 CP 1.1552 .6731 .3846 .1886 .1886 .1986 .9284 .9728 .9416 .9465 .9463 .9416 .9528 .9463 .9416 .9528 .9533 .5416 .9528 .9533 .5416 .9528 .9533 .5496 .9533 .5496 .9533 .5496 .9533 .5496 .9533 .5496 .9533 .5496 .9533 .5496 .9533 | 5.99 XV/L -5.25 -4.58 -3.75 -3.48 -2.25 -1.98 -2.25 -1.98 -2.59 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 -3.75 -3.75 -3.88 | .75 CPW010900760076001600180015013501350135013718641271136617731366198323161088108810880188 | 2492 X/L .000 .000 .000 .000 .000 .000 .000 . | .761 CP 1.1449 -4119 -1823 -1.789 -4897 -6.6384 -7957 -1.6651 -1.1657 -1.1657 -1.1657 -1.1659 -1.2216 -1.2216 -1.2216 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.22189 -1.2258 | 5.99 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.86 -2.58 -1.25 -1.85 -2.58 -5.55 -3.88 -5.55 -3.88 -3.75 -3.88 | CPW |
| 2. X // | 993 984 985 986 988 988 988 988 988 988 988 988 988 | - 697 CP - 9882 - 9725 - 7474 - 4936 - 2541 - 6149 - 3146 - 3593 - 31797 - 3919 - 4088 - 4048 - 4123 - 4231 - 4231 - 4288 - 4948 - 4123 - 4231 - 423 | 5.88 XW 25.25 -4.75 -3.025 -1.25 | -2.66 CPV - 0872 - 0872 - 0872 - 0864 - 0812 - 08148 - 0814 - 0814 - 0815 - 0814 - 0812 - 0814 - 0812 - 0814 - 0812 - 0814 - 0812 - 0814 - 0812 - 0816 - 0815 - 0816 - 0815 - 0816 - 0816 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 - 0887 | 2490 X/L .800 .004 .008 .015 .025 .040 .060 .140 .180 .226 .340 .340 .340 .350 .360 .590 .590 .590 .590 .590 .590 .590 .59 | .761 CP 1.8231 1.8812 .7827 -5388 -2977 -8311 -1198 -3223 -3629 -4226 -4352 -4452 -4552 | 5.98 XV /L -5.25 -4.58 -3.75 -3.86 -1.26 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 | -2.66 CPV -8185 -0877 -0834 -0818 -0856 -0119 -0856 -0877 -0557 -0857 -0856 -0877 -0856 -0877 -0856 -0877 -0856 -0879 -0871 -0818 -0879 -0871 -0818 -0879 -0871 -0818 -0879 -0871 -0818 -0879 -0871 -0818 -0879 - | 2491 X/L -008 -008 -018 -025 -040 -146 -186 -186 -186 -186 -186 -186 -186 -18 | .768 CP 1.1552 .6731 .3846 .1886 .1886 .1986 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9965 .9166 .9328 .9978 .9278 .9278 .9278 .9278 .9278 .9328 .9338 .93 | 5.99 XV/L -5.25 -4.59 -3.75 -3.06 -2.25 -1.50 -1.60 -7.50 -2.55 -1.60 -7.50 -2.55 -2.50 -7.50 -2.55 -3.50 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 -3.60 -2.55 -3.75 | .75 CPW0109007800160018001800150135013502771064612711366127113661020013101310131013101310131013101310131013101310131013101310131 | 2492 X/L -000 -008 -015 -029 -140 -180 -220 -230 -240 -340 -340 -340 -340 -340 -340 -340 -3 | .761 CP 1.1449 .4119 .1823 -1.789 .4897 -6.6384 -7.9577 -1.1667 -1.1667 -1.2216 -1.2216 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2216 -1.2258 -1.2258 -1.2216 -1.2258 | 5.99 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.88 -2.25 -1.89 -2.25 -1.89 -2.25 -2.25 -3.75 -3.88 -3.75 -3.76 -3.75 -3.76 -3.75 -3.76 -3.75 -3.76 | CPW |
| 2. X/I -044-040-040-040-040-040-040-040-040-04 | 993 - 6645 - 552 - 665 - | - 697 CP - 9882 - 9725 - 7474 - 4936 - 2541 - 6149 - 3146 - 3146 - 31767 - 3919 - 4088 - 4048 - 41231 - 41231 - 41231 - 4236 - 4588 - 4948 - 4891 - 497 - 2794 - 63146 - 6782 - 1189 - 9665 - 68675 - 37316 - 4881 - 5593 | 5.88 XW 25.25 -4.75 -3.025 -1.25 | -2.68 CPV08720872087208720864081380494061380494064605290553044804620468052404680524046805240468052404680524056805680578 - | 2498 X/L .000 .004 .008 .015 .025 .040 .060 .140 .160 .220 .240 .380 .380 .420 .450 .560 .560 .570 .690 .975 .600 .975 .600 .975 .600 .975 .975 .980 .975 .975 .980 .975 .975 .980 .975 .980 .975 .980 .975 .980 .975 .980 .975 .980 .975 .980 .975 .980 .980 .975 .980 .980 .980 .980 .980 .980 .980 .980 | .761 CP 1.0231 1.0012 .7827 -5308 2977 -9311 -1190 -3223 -3899 -4226 -34452 -4452 -4452 -4529 -4529 -5728 -5728 -6853 -5926 -1263 -1265 -8652 -3466 -4865 | 5.98 XW /L -5.25 -4.58 -3.75 -3.68 -2.25 -1.26 -2.58 -2.59 | -2.66 CPV -8185 -0877 -0834 -0818 -0856 -0119 -0856 -0877 -0141 -1099 -0856 -0877 -08567 -0877 -0878 | 2491 X/L .000 .000 .000 .015 .025 .040 .060 .140 .180 .226 .340 .360 .360 .360 .360 .360 .360 .360 .36 | .768 CP 1.1552 .6731 .3846 .1959 .3846 -1359 .3846 -9728 -9953 -9468 -94 | 5.99 XV/L -5.25 -4.59 -3.75 -3.06 -2.25 -1.98 -2.50 -2.50 -3.75 -3.08 -2.50 -3.75 -3.08 -3.08 -3.08 -3.08 -3.08 -3.08 -3.08 -3.08 -3.08 -3.08 -3.08 | .75 CPV0109007800160016001800180135013501271196312711763177318841763051306630663 | 2492 X/L .000 .000 .000 .000 .000 .000 .000 .0 | .761 CP 1.1449 -4119 -1823 -1799 -4897 -5384 -7957 -1.1657 -1.1659 -1.2216 -1.2258 -1.2189 -1.2258 -1.2189 -1.2258 -1.2189 -1.2258 -1.2189 -1.2258 -1.2189 -1.2258 -1.2189 -1.2258 | 5.99 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.86 -2.25 -1.86 -2.25 -1.86 -2.25 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 | 3.00 CPW -0107-00317-01281 -01281-01281 -01281-01281 -01997-013693-127468 -2463-127468 -2463-13673 -06525-066752 -0654593-067672 -0654593-067676 -0654593-067676 -0654593-067676 -067677-0796 |
| 2. X // | 99 3 9 4 4 5 5 5 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | - 697 CP - 9882 - 9725 - 7474 - 4936 - 2541 - 6149 - 3146 - 31767 - 3919 - 4882 - 4948 - 4123 - 4231 - 4236 - 4123 - 4231 - 4236 - 4528 - 4948 - 497 - 2794 - 6336 - 6752 - 1899 - 9867 - 33738 - 4316 - 4881 - 4948 - 4948 - 4948 - 4948 - 4948 - 495 - 6875 - 3738 - 4316 - 4387 - 4316 - 4881 - 4948 - 5563 - 5593 - 3471 | 5.88 XW 25.25 -4.575 -3.085 -1.25 -1.25 -1.25 -1.26 -2.58 - | -2.66 CPV887288728872887288728872887288148494833884948 | 2498 X/L .000 .004 .008 .015 .025 .040 .040 .040 .140 .120 .220 .240 .340 .380 .420 .440 .540 .540 .540 .540 .540 .540 .54 | .761 CP 1.0231 1.0012 .7827 -5308 -2977 -9311 -11190 -3223 -3462 -3445 -4475 -4475 -4475 -4475 -4475 -4475 -4475 -4475 -4475 -4529 -4685 -5128 -6852 -1283 -4685 -5276 -5128 -6852 -17634 -77538 -3623 -3623 | 5.98 XW /L -5.25 -4.58 -3.75 -3.82 -1.26 -2.25 -1.26 -2.25 -1.25 -1.25 -2.25 | -2.66 CPV -8185 -0877 -0834 -0818 -0856 -0119 -0856 -0877 -0141 -0856 -0877 -0856 -0877 -0856 -0878 | 2491 X/L .000 .000 .000 .000 .000 .000 .146 .000 .146 .220 .240 .340 .360 .360 .360 .360 .360 .360 .360 .36 | .768 CP 1.1552 .6731 .3846 .1866 .1869 .3854 -9728 .9685 -9668 -9463 -9416 -9527 -9687 -9688 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -9278 -9416 -94 | 5.99 XV/L -5.25 -4.59 -3.75 -3.06 -2.25 -1.90 -2.56 | .75 CPV010900780016001800180018013501950135019612711963231617731884138610880513 | 2492 X/L .000 .000 .000 .000 .000 .000 .000 .0 | .761 CP 1.1449 -4119 -1823 -1799 -4897 -6384 -7957 -1.6631 -1.1657 -1.216 -1.2258 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2258 -5728 -1.2189 -1.2189 -1.2258 -5728 -1.2189 -1.218 | 5.99 XW | CPW - #197 - #9187 - #1881 - # |
| 2. X / X / 3 / 3 / 3 / 3 / 3 / 3 / 3 / 3 / | 993 984 985 986 986 986 986 986 986 986 986 | - 697 CP - 9882 - 9725 - 7474 - 4930 - 2541 - 6140 - 1524 - 3146 - 3146 - 3146 - 3146 - 4183 - 4488 - 4183 - 4231 - 4231 - 4288 - 4940 - 4183 - 4288 - 4940 - 4183 - 4897 - 2794 - 6721 - 6365 - 5965 - 34718 - 5593 - 5990 - 3481 | 5.88 XW 259-4.595-1.295-1.295-1.295-2.205-2.295-2.295-2.205 | -2.66 CPV - 0872 - 0872 - 0872 - 0864 - 0864 - 0879 - 0813 - 0414 - 0464 - 0462 - 0414 - 0464 - 0462 - 0414 - 0462 - 0416 - 0629 - 0553 - 0446 - 0629 - 0553 - 0446 - 0629 - 0553 - 0446 - 0629 - 0553 - 0446 - 0629 - 0553 - 0446 - 0629 - 0553 - 0446 - 0629 - 0553 - 0646 - 0629 - 0553 - 0646 - 0629 - 0553 - 0646 - 0629 - 0553 - 0646 - 0629 - 0655 - 0667 - 0667 - 0675 | 2498 X/L -808 -808 -815 -825 -846 -858 -148 -128 -248 -388 -388 -388 -388 -588 -588 -588 -58 | .761 CP 1.0231 1.0812 .7827 -5308 -2977 -6311 -11198 -3223 -3466 -4452 -4452 -4452 -4529 -3624 -4529 -3624 -4655 -4624 -4991 -5198 -5128 -6852 -12637 -6852 -12637 -6736 -7538 -3623 -1597 -5728 -7538 -3623 -1597 -5728 -7538 | 5.98 XW /L -5.25 -4.58 -3.75 -3.82 -1.26 -1.26 -2.56 -2.25 -1.25 -1.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -3.75 -3.82 -3.75 -3.82 -1.25 -1.26 -2.25 -2.25 | -2.66 CPV -8185 -0877 -0834 -0818 -0856 -0119 -0856 -0877 -0141 -0856 -0877 -0856 -0877 -0856 -0877 -0856 -0878 -0878 -0878 -0878 -0878 -0878 -0878 -0886 -0878 -0886 -0878 -0886 -0878 -0886 -0878 -0886 -0878 -0886 | 2491 X/L -008 -008 -015 -025 -040 -066 -050 -146 -126 -226 -266 -386 -386 -386 -386 -386 -386 -386 -3 | .768 CP 1.1552 .6731 .3846 .1959 .3846 .1959 .3844 -9286 .9463 .9463 .9416 .9528 .9416 .9528 .9416 .9528 .9533 .9416 .9528 .1552 .3398 .1851 .1552 .3398 .1861 .1552 .3398 .1861 .1552 .3398 .18628 .3398 | 5.99 XV/L -5.25 -4.59 -3.75 -3.40 -2.25 -1.50 -1.25 -1.50 -2.25 -1.25 -2.25 | .75 CPV010900780016001800180018013501350135013719631271196312711963127612711963127119631271196312711064106930119 | 2492 X/L .0004 .0005 .015 .0240 .0800 .1500 .0800 .1400 .2200 .3400 .3400 .3400 .3400 .5000 .580 | .761 CP 1.1449 -4119 -1823 -1799 -4897 -6394 -7957 -1.1657 - | 5.99 XW /L -5.25 -4.58 -3.75 -3.88 -2.25 -1.26 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -2.58 -3.75 -3.88 -3.88 | 3.00 CPW 0107 00317 01281 01281 01281 01281 01397 01393 27468 28463 28463 28463 28463 2861 |
| 2. X / X / 3 / 3 / 3 / 3 / 3 / 3 / 3 / 3 / | 99 4 4 5 5 5 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .697 CP .9882 .9727 .4930 .2541 -6146 -1524 -3146 -3146 -3146 -3146 -4183 -4481 -4123 -428 -4946 -4123 -428 -4946 -4123 -428 -4946 -4123 -428 -4946 -4123 -428 -497 -497 -4965 -5967 -9665 -31736 -4881 -5937 -4981 -5967 -9665 -31738 -41656 | 5.88 XW 259-4.595-1.985-1.995 | -2.66 CPW - 0872 - 0872 - 08672 - 0864 - 08664 - 0879 - 0868 - 0818 - 08 | 2498 X/L -000 -048 -018 -025 -040 -088 -180 -180 -180 -180 -180 -180 -18 | .761 CP 1.0231 1.001 2.7827 -3382 -2977 -3311 -11198 -3263 -3499 -4226 -4445 -4476 -4552 -4529 -4666 -4824 -4991 -5128 -6852 -4868 -48746 -4885 -6852 -3466 -4868 | 5.98 X W /L -5.25 -4.58 -2.25 -1.26 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -2.2 | -2.66 CPV -8165 -8677 -8634 -8618 -8619 -8619 -8617 -8119 -8656 -877 -8557 -8556 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 -8795 | 2491 X/L -008 -008 -018 -025 -040 -180 -180 -180 -180 -180 -180 -180 -18 | .768 CP 1.1552 .6731 .3646 .1896 .1359 .3846 -926 .9264 .9265 .9463 .946 | 5.99 XV/L -5.25 -4.58 -3.75 -3.88 -1.25 -1.59 -1.25 -1.69 -2.55 -1.69 -2.55 -3.75 -3.75 -4.58 -3.75 -1.65 | .75 CPW01090078001600160018001500150015013501350297664612711963231612731804136616200013018900130189 | 2492 X/L | .761 CP 1.1449 .4119 .1823 -1789 -4897 -6384 -7957 -1.1657 -1.1657 -1.1657 -1.1657 -1.1657 -1.1657 -1.2216 - | 5.99 XW /L -5.25 -4.57 -3.06 -1.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.07 -5.25 -1.08 -2.25 -2.25 | 3.00 CPW -0107-00017 -00017 -01018 -01201 -01201 -01201 -01301 - |
| 2. X // | 99 4 4 5 5 5 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .697 CP .9882 .9725 .7474 .4930 .2541 -6149 -3146 -31767 -3919 -4816 -4827 -4888 -4948 -4123 -4231 -4341 -4341 -5563 -5329 -3471 -5593 -6151 -5593 -6151 -5593 -6151 -5593 | 5.88 X ¥ 25 -4.57 -3.82 -1.25 -1.26 -1.26 -2.26 | -2.66 CPW08720872086720864086408790812040301160404040204 | 2498 X/L -000 -008 -018 -028 -028 -038 -038 -140 -180 -180 -180 -220 -380 -380 -380 -460 -580 -780 -680 -780 -680 -780 -880 -880 -880 -880 -880 -880 | .761 CP 1.0231 1.0812 .7827 -5308 -2977 -6311 -11198 -3223 -3466 -4452 -4452 -4452 -4529 -3624 -4529 -3624 -4655 -4624 -4991 -5198 -5128 -6852 -12637 -6852 -12637 -6736 -7538 -3623 -1597 -5728 -7538 -3623 -1597 -5728 -7538 | 5.98 X W /L -5.25 -4.59 -3.75 -3.69 -1.25 -1.26 -2.25 -5.25 -1.26 -2.25 -2.2 | -2.66 CPV -8185 -8677 -8634 -8119 -8141 -9189 -8577 -9327 - | 2491 X/L -008 -008 -018 -028 -028 -038 -146 -186 -186 -186 -186 -186 -186 -186 -18 | .768 CP 1.1552 .6731 .3646 .1359 .3646 .1359 .3646 .9265 .9265 .9265 .9463 .9463 .9463 .9464 .9278 .9278 .9288 .9469 .9469 .1559 .15 | 5.99 XV/L -5.25 -4.50 -3.75 -1.60 -2.25 -1.60 -2.25 -3.60 -2.25 -3.60 -2.25 -3.60 -3.75 -3.75 -3.60 -3.75 | .75 CPW010900780016001600180015001500150135001501350135013501361271196312731804136616090013011600190016001900160019001600190016 | 2492 X/L | .761 CP 1.1449 .41193 .1023 .1029 .4897 .6394 .79577 .9577 .1.6631 1.1657 1.2216 .2.2114 .2.2174 .2.216 .2.2114 .2.2174 .2.216 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 | 5.99 XW 2.59 -4.595 -1.259 -1.269 -2.595 -1.269 -2.595 -1.269 -2.595 -2 | 3.00 CPU -0107-00017-00017-00017-00017-0018-0018- |
| 2. X / X / 3 / 3 / 3 / 3 / 3 / 3 / 3 / 3 / | 99 4 4 5 5 5 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .697 CP .9882 .9727 .4930 .2541 -6146 -1524 -3146 -3146 -3146 -3146 -4183 -4481 -4123 -428 -4946 -4123 -428 -4946 -4123 -428 -4946 -4123 -428 -4946 -4123 -428 -497 -497 -4965 -5967 -9665 -31736 -4881 -5937 -4981 -5967 -9665 -31738 -41656 | 5.88 XW 2583-4-758-3-88-8-88-8-88-8-88-8-88-8-88-8-88- | -2.66 CPV - 0872 - 0872 - 0872 - 0864 - 0864 - 0879 - 0814 | 2498 X/L -000 -008 -018 -028 -028 -038 -038 -140 -180 -180 -180 -220 -380 -380 -380 -460 -580 -780 -680 -780 -680 -780 -880 -880 -880 -880 -880 -880 | .761 CP 1.0231 1.001 2.7827 -3382 -2977 -3311 -11198 -3263 -3499 -4226 -4445 -4476 -4552 -4529 -4666 -4824 -4991 -5128 -6852 -4868 -48746 -4885 -6852 -3466 -4868 | 5.98 XW /L -5.25 -4.58 -3.75 -3.825 -1.26 -1.26 -2.56 -2.56 -2.56 -2.56 -2.56 -3.75 -3.825 -4.58 -3.75 -3.825 -1.26 -3.75 -3.825 -1.27 -3.825 -3.82 | -2.66 CPV -8195 -0877 -8034 -6019 -0858 -0119 -0858 -0119 -0858 -0859 | 2491 X/L -008 -008 -018 -028 -028 -038 -146 -186 -186 -186 -186 -186 -186 -186 -18 | .768 CP 1.1552 .6731 .3646 .1359 .3646 .1359 .3646 .9265 .9265 .9265 .9463 .9463 .9463 .9464 .9278 .9278 .9288 .9469 .9469 .1559 .15 | 5.99 XV/L -5.25 -4.59 -3.75 -3.09 -2.25 -1.90 -2.25 -1.90 -2.50 -2.25 -1.90 -2.50 -2.50 -2.50 -2.50 -3.75 -3.90 -3.90 -3.75 -3.90 | .75 CPW010900760076001600180015013501350135013718641271196323161773186410600518 | 2492 X/L | .761 CP 1.1449 .41193 .1023 .1029 .4897 .6394 .79577 .9577 .1.6631 1.1657 1.2216 .2.2114 .2.2174 .2.216 .2.2114 .2.2174 .2.216 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 .2.2136 | 5.99 XW 25.85 -4.575 -3.825 -1.285 | 3.00 CPW -0107-00017-00187-00187-00187-00188-1-00188- |

| Tabl | e 3.4 | Conti | nued | | | | | | | | | | | | |
|---|--|--|--|---|---|--|---|---|--|--|--|--|---|--|--|
| NR. | HACH | E- 6+RE | AL PHA | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA |
| 2495 | - 701 | 6.06 | -1.00 | 2496 | .703 | 5.98 | .00 | 2497 | .781 | 5.97 | 1.00 | 2498 | -701 | 5.94 | 2.00 |
| ×A | CP | XVA | CPV | X/L | CP | XWAL | CPW | X/L | CP | XW/L | CPW | X/L | CP | XWAL | CPW |
| .000 | 1.8689 | -5.25 -4.50 | 0065 | .000 | 1.1251 | -5.25 | 0073 0037 | .000 | 1.1343 | -5.25 -4.50 | 0059 | .000 | 1.1169 | -5.25 -4.50 | 0089 |
| .008 | .5941 | -3.75 | 0009 | .008 | -4117 -1210 | -3.75 -3.00 | 0004 | .008 .015 | -1967 | -3.75 -3.00 | 0008 -0038 | .008 | 0245 | -3.75 | - 0020 |
| .025 | 1910 | -2.25 | - 88 68 - 88 64 | .025 | 1279 | -2.25 | .0049 | .025 .040 | 3483 | -2.25 -1.50 -1.25 | .8878 .8845 8882 | .025 | 5620 7902 8428 | -2.25 -1.50 -1.25 | .0064 .0027 |
| -060 -080 -100 | 3217 5244 5467 | -1.25 -1.00 75 | .8845 .8861 8835 | .060 .080 | 5109 8129 7515 | -1.25 -1.00 75 | 0010 0037 0123 | -880 | 6718 -1.1153 -1.1432 | -1.66 | 0075 0178 | .088 | -1.1977 -1.2833 | -1.00 | 0126 0273 |
| -140 | 5233 | 50 | 6188 | -148 | 6982 | 50 | 0212 | -140 | 9924 | 59 | 0351 0676 | -140 | -1.3540 -1.3168 | 50 | 0541 |
| -266 | 5110 | .25 | 0473 0718 | .260 | 6441 | -25 | 0736 | .226 .260 | 7883 7362 7058 | .25 | 1101 | .220 | -1.2779 -1.2778 7169 | .00 .25 | 1534 2069 2212 |
| - 300 - 340 - 380 | 5891 4946 4974 | .50 .75 | 0895 0841 0865 | -360 -346 -360 | 6025 5808 5715 | • 50 • 75 1 • 00 | 1255 1151 1140 | -340 -380 | 6685 6541 | .50 .75 | 1717 1428 1425 | ·340 ·380 | 6552 | 1.00 | 1769 |
| - 420 | 5028 4993 | 1.25 | 0736 0617 | . 420 . 460 | 5646 | 1.25 | 0978 | · 420 | 6419 6421 | 1.25 | 1172 0959 | . 420 | 6790 | 1.25 | 1464 |
| - 540 | 5423 | 2.00 | 0488 | - 540 | 5776 | 2.00 | 0625 | · 500 · 540 · 580 | 6668 | 2.00 | 0726 | .500 .540 .580 | - · 6874 - · 7071 - · 6989 | 1.75 2.00 2.25 | 0903 0736 0660 |
| - 588 - 628 - 788 | 5512 5405 4829 | 2.25 2.58 2.75 | 0368 0367 0347 | .580 .620 .700 | 6941 5856 5969 | 2.25 | 0463 0433 0406 | · 620 | 6534 6273 5330 | 2.25 2.50 2.75 | 0540 0535 0467 | .620 | 6669 5583 | 2.50 | 0509 0533 |
| - 866 | 2916 | 3.50 | 8271 | -800 | 3022 | 3.50 | 0347 | - 800 | 3116 0855 | 3.50 | 0381 - 0014 | .900 | 3253 0888 | 3.50 -5.25 | 0402 0003 |
| .950 .975 | .0341 .0752 | -4.50 -3.75 | 6626 | .950 | .9262 .9667 | -4.50 -3.75 | 0020 | .950 .975 | .0207 .0639 | -4.50 -3.75 | 0019 | .950 .975 | .0172 .0582 .0890 | -4.50 -3.75 -3.00 | 0013 -0063 -0126 |
| 1.000 | .1126 1.0689 2143 | -3.00 | -0073 -0111 | 1.000 | .8995 1.1251 .1626 | -3.00 -2.25 -1.50 | .0075 .0138 .0212 | -994 | .0926 1.1343 .4679 | -3.00 -2.25 | .0084 .0212 .0291 | -000 | 1.1169 | -2.25 | .0213 |
| ·008 | 4821 | -1.50 -1.25 -1.00 | .0169 .0185 .0200 | .020 | 0759 | -1.25 | .0212 | - 008 - 020 | .2417 | -1.25 | · 8344 • 8346 | .020 | · 4905 • 3204 | -1.25 | .0435 .0517 |
| -050 -100 | 2030 2946 | 75 | .0167 .0157 | -050 -100 | 0383 | 75 | .0275 .0331 | -100 | 0183 | 75 | · 8492 | .050 .100 | .2469 .0962 0214 | 75 50 25 | .0655 .0726 |
| ·150 | 3649 4427 4971 | 25 | ·0115 | -150 -200 -250 | 2370 3234 3929 | 25 .00 .25 | .0312 .0317 .0244 | -150 -260 -250 | 1272 2176 2887 | 25 .00 | •0503 •0514 •0525 | .200 | 1162 | .00 | .0792 |
| ·250 ·350 ·450 | 4593 3682 | .25 .50 .75 | .0001 .0021 .0054 | .350 | 3791 | .50 | .0301 | · 350 | 3056 | ·50 | · 6493 • 6515 | .350 .450 | - · 2292 - · 1493 | •50 •75 | .0751 .0745 |
| • 550 • 650 | 1337 .0397 | 1.25 | .0081 .0173 | .550 .650 | 1046 -0588 | 1.00 | .0318 | • 550 • 650 | 0662 -0815 | 1.00 | · Ø513 • Ø48Ø | .550 .650 .750 | 0330 -1050 -2452 | 1.25 | .0678 .0605 .0482 |
| • 750 • 850 | ·1927 ·2883 | 1.75 | -0118 -0089 | .750 .850 | ·2116 ·3025 ·0995 | 1.75 | .0268 .0199 .0139 | .750 .850 | .2271 .3167 .0926 | 1.75 | .0347 .0267 .0214 | .850 | ·3276 ·0890 | 1.75 | .0361 |
| 1-000 | .1126 | 2.00 2.25 2.50 | -0055 0065 0036 | 1.000 | .0773 | 2.25 | 0073 | | ,20 | 2.25 | 0059 | | | 2.25 | 0089 0056 |
| | | 2.75 | 0009 | | | 2.75 | 0004 | | | 2.75 | 0008 - 0038 | | | 2.75 3.50 | 0020 -0046 |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | NR. | MACH | E- 6+RE | ALPHA | NR. | MACH | F- 4+DF | AI PWA | , No | MACV | F- 44DF | AL DUA |
| NR. 2499 | MACH • 782 | E-6*RE | AL PHA | NR. 2500 | MACH • 699 | E- 6*RE 5.95 | ALPHA | NR. 2501 | MACH -700 | E- 6*RE 5.91 | AL PHA 4.50 | NR. 2502 | MACH .699 | E-6*RE 5.90 | AL PHA 5-00 |
| 2499 | .702 | | | | | | | | | | | | | | |
| 2499 X/L •000 | .762 CP | 5.96 XV/L -5.25 | 3.00 CPW 0062 | 2500 X/L .000 | .699 CP | 5.95 XV/L -5.25 | CPW | 2581 X/L | .700 CP | 5.91 XV/L -5.25 | 4.50 CPW | 2502 X/L •000 | .699 CP | 5.90 XV/L -5.25 | 5.00 CPW |
| 2499 X/L •000 •004 •008 | .702 CP 1.0738 .0900 | 5.96 XW/L -5.25 -4.50 -3.75 | CPW00620610062 | 2500 X/L. .000 .004 .008 .015 | .699 CP 1.8838 8916 4461 7828 | 5.95 XW/L -5.25 -4.50 -3.75 -3.00 | CPW ~ . 60953 . 6064 | 25 6 1 | -700 CP | 5.91 XW/L | 4.50 CPW 0043 0042 0066 | 2502 X/L .000 .004 .008 | .699 CP .9543 2058 5448 | 5.90 XV/L -5.25 -4.50 -3.75 | CPW 0038 0037 0038 |
| 2499 X/L •000 •004 | .702 CP 1.0738 | 5.96 XV/L -5.25 -4.50 | CPV00629616 | 2500 X/L. .000 .004 .008 .015 .025 .040 | .699 CP 1.8838 8916 4461 7828 9193 | 5.95 XW/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.50 | CPW00950032 -0053 -0084 -0117 | 25#1 X/L -### -### -### -### | .700 CP .9812 1403 4968 7477 9665 | 5.91 XW/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.50 | - 00 43 - 00 42 - 00 66 - 01 20 - 00 68 - 00 61 | 2502 X/L .000 .004 .008 .015 .025 | .699 CP .9543 2058 5448 5448 -1.0235 -1.2631 | 5.90 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | CPW003800370038006802020153 |
| 2 499 X/L .000 .004 .008 .015 .025 .040 .060 | .702 CP 1.0738 .0900 2490 5162 7536 9829 -1.1705 -1.3364 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | CPW00620010 -0066 -0068 -00430082 | 2500 X/1. .000 .004 .008 .015 .025 .040 .060 .060 | .699 CP 1.0030 0916 4461 7020 9193 -1:1691 -1:3133 -1:4548 | 5.95 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | CPW | 2501 X/L -000 -004 -008 -015 -025 -040 -060 -080 | .700 CP .9812 1403 4968 7477 9665 -1.2106 -1.3542 -1.4977 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | - 00 43 - 00 42 - 00 66 - 01 20 - 00 68 - 00 61 - 00 38 - 00 38 | 2502 X/L .000 .004 .008 .015 .025 .040 .060 | .699 CP .9543 2058 5448 7994 -1.0235 -1.2631 -1.3960 -1.5237 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | CPW |
| 2 499 X/L .000 .004 .015 .025 .040 .080 .080 .140 | .702 CP 1.0738 .0900 -2490 -5162 -7536 -9829 -1.1705 -1.3364 -1.3837 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.50 -1.50 -1.50 -1.50 -5.50 | CPW00620010 -0062 -0066 -0066 -0068 -0043005201860186 | 2500 X/L. .000 .004 .005 .015 .025 .040 .060 .060 .100 .180 | .699 CP 1.8838 8916 4461 7828 9193 -1.1691 -1.3133 -1.4548 -1.5246 -1.5246 -1.5789 | 5.95 XV/L -5.25 -4.50 -3.75 -1.50 -1.25 -1.00 75 50 | CPW00950053005300840034003400462046620574 | 2501 X/L -000 -004 -008 -015 -025 -040 -060 | .788 CP .9812 1403 4968 7477 9665 -1.2186 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | CPW | 2502 X/L .000 .004 .005 .015 .025 .040 .060 .060 | .699 CP .9543 2058 5448 7994 -1.0235 -1.2631 -1.3960 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | CPW0038 -0037 -0038 -0068 -0202 -0153 -0038 |
| 2 499 X/L .000 .004 .008 .015 .025 .040 .060 | .702 CP 1.0738 .0900249051627536982911705 -1.3337 -1.4741 -1.4569 -1.4942 | 5.96 XW/L. -5.25 -4.50 -3.75 -3.00 -1.25 -1.50 -1.25 -1.75 | CPW00620010 -0062 -0066 -0068 -0043005201860363073713122121 | 2500 X/L | .699 CP 1.00300916446170209193 -1.1691 -1.3133 -1.5246 -1.5246 -1.5789 -1.5789 -1.5789 | 5.95 XV/L -5.25 -4.50 -3.75 -2.25 -1.50 -1.50 -1.50 -1.50 -1.50 -1.50 -1.50 -2.55 -2.5 | CPW | 2591 X/L .000 .004 .015 .025 .040 .050 .050 .040 .050 .040 .050 | .700 CP .9812 1403 4968 7477 9665 -1.2106 -1.3542 -1.3542 -1.6329 -1.6329 -1.6329 -1.6326 | 5.91 XW/L -5.25 -4.50 -3.75 -3.80 -1.50 -1.50 -75 55 60 25 | CPW - 00 43 - 00 42 - 00 66 - 01 20 - 00 68 - 00 18 - 00 18 - 01 25 - 0404 - 0791 - 1502 - 2373 | 2502 X/L .000 .004 .015 .025 .040 .060 .060 .140 .140 .220 .260 | .699 CP .9543 -2058 -5448 -7994 -10235 -1.2631 -1.5237 -1.5973 -1.6673 -1.6184 -1.5497 -1.4566 | 5.98 XV/L -5.25 -4.56 -3.75 -3.00 -2.25 -1.50 -1.25 -1.0075250025 | CPW - 0038 - 0038 - 0038 - 0038 - 0038 - 0048 - 0188 - 0442 - 0753 - 1446 - 2273 |
| 2 499 X/L .000 .004 .005 .015 .040 .0160 .0160 .0160 .0160 .0160 .0260 .0340 .0340 .0340 | .782 CP 1.8738 .8988 -2498 -5162 -7536 -9829 -1.1785 -1.3837 -1.4741 -1.4569 -1.4942 -1.4995 -1.4895 | 5.96 XV/L -5.25 -4.58 -3.76 -2.25 -1.58 -1.25 -1.08752558 | CPW0062001000620066006800680085201860363 | 2500 X/1. .000 .004 .005 .015 .025 .040 .060 .100 .100 .100 .100 .100 .220 | .699 CP 1.88388916496178289193 -1.1691 -1.3133 -1.4546 -1.5246 -1.5789 -1.5789 -1.6163 | 5.95 XV/L -5.25 -4.58 -3.76 -2.25 -1.58 -1.25 -1.08 -2.55 -1.08 -2.55 -2.56 | CPW00950053 -0053 -005400120016001604620462054641574255137952722 | 2591 X/L .000 .0015 .015 .0240 .060 .080 .080 .146 .180 .2260 .260 .340 | .788 CP .9812 -1403 -4965 -1-2106 -1-2106 -1-3542 -1-497 -1-5583 -1-6328 -1-6449 -1-6459 -1-6189 | 5.91 XV/L -5.25 -4.58 -3.75 -3.86 -2.25 -1.58 -1.25 -1.88 -7.58 -2.56 -2.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 -3.56 | CPW - 80 43 - 90 45 - 90 46 - 91 26 - 90 61 - 90 38 - 91 25 - 94 40 - 97 91 - 15 92 - 32 32 - 33 79 - 27 98 | 2502 X/L .000 .004 .0015 .025 .025 .040 .100 .140 .140 .220 .260 .340 | .699 CP .9543 -2058 -548 -7994 -1.0235 -1.2631 -1.3960 -1.5237 -1.6673 -1.6673 -1.6184 -1.5497 -1.4566 -1.3911 -1.2599 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 75 50 25 00 25 00 25 00 25 00 25 00 | CPW - 0038 - 0038 - 0038 - 0038 - 0042 - 0148 - 0144 - 07753 - 1446 - 22730 - 3816 - 2879 |
| 2499 X/L .086 .084 .086 .815 .825 .846 .868 .189 .148 .168 .268 .388 .388 .388 | .702 CP 1.0738 .0900 -2.490 -5162 -7536 -1982 -1.1736 -1.3837 -1.4741 -1.4942 -1.4942 -1.4942 -1.4942 -1.4942 -1.4942 -1.4942 -1.4942 -1.4942 -1.4942 | 5.96 XV/L -5.25 -4.58 -2.25 -1.58 -1.25 -1.07 -2.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 -7.58 | 3.88 CPV -8862 -9818 -8862 -8868 -8843 -8852 -18186 -8133 -8737 -1312 -2891 -2891 -2239 -2215 -1772 | 2500 X/1. .0004 .0004 .0015 .0004 .0 | .699 CP 1.88388916446178289193 -1.1691 -1.3133 -1.4548 -1.5246 -1.5943 -1.5258 -1.6169 -1.6169 -1.6161 | 5.95 XV/L -5.25 -4.50 -3.75 -3.60 -2.25 -1.50 -7.55 -60 -2.55 -7.51 -60 -2.55 -7.51 -60 -2.55 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 -7.51 | 4.00 CPW 0895 0832 0953 0963 0117 0932 0168 1574 1574 2521 3795 2722 2722 2722 2722 2722 2722 | 2591 X/L .004 .004 .008 .015 .040 .080 .140 .180 .260 .300 .340 .460 | .788 CP .9812 -1493 -4968 -747 -9665 -1.2186 -1.3542 -1.4977 -1.5593 -1.6329 -1.6459 -1.6189 -1.4983 -1.4983 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.5075505055 | CPW | 2502 X/L .000 .004 .015 .025 .040 .060 .140 .140 .180 .220 .300 | .699 CP .9543 -2058 -5494 -7994 -1.0235 -1.5237 -1.5237 -1.5673 -1.6673 -1.5497 -1.4566 -1.391 | 5.98 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.05 75 90 25 56 | CPW |
| 2499 X/L .888 .805 .805 .805 .805 .806 .806 .806 .806 .308 .308 .308 .308 .428 .466 .588 | .702 CP 1-0738 .0980 -2490 -5162 -17536 -9829 -1.1705 -1.3364 -1.3837 -1.4749 -1.4947 -1.4821 -1.4821 -1.4621 | 5.96 XV/L -5.25 -4.50 -2.25 -1.50 -1.5550755075507550755075507550755075507575757575757575 | J. 66 CPW - 6662 - 6618 - 6862 - 6866 - 6863 - 7863 - 7864 - 7864 | 2500 X/L | .699 CP 1.88388916486178289193 -1.1691 -1.3133 -1.4548 -1.5924 -1.5931 -1.6169 -1.6133 -1.6211 -1.6169 -1.6169 -1.6169 -1.617 -1.9068 | 5.95 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.08 -2.55 -2.55 -1.08 -2.55 -2 | 4.88 CPW 0895 0832 0853 0863 0862 0862 0862 1574 2521 3795 2722 2722 2118 1587 1276 | 2591 X/L •994 •994 •915 •925 •926 •169 •189 •269 •389 •389 •469 •594 | .788 CP .9812 -14963 -4968 -747 -9665 -1.2186 -1.3542 -1.4977 -1.6249 -1.6328 -1.6489 -1.6489 -1.4931 -1.9186 -1.9341 -1.936 | 5.91 XW/L -5.25 -4.50 -3.75 -3.86 -2.25 -1.50 -1.25 -1.98755025 -1.60 1.25 1.50 1.75 | 4-50 CP W - 00 43 - 00 66 - 00 38 - 00 38 - 00 38 - 00 40 - 07 90 - 23 73 - 32 79 - 25 70 - 21 70 | 2502 X/L .000 .004 .004 .015 .025 .025 .040 .100 .100 .100 .100 .100 .100 .100 | .699 CP .9543 -2054 -10235 -1-2631 -1-3968 -1-5237 -1-6184 -1-5973 -1-6184 -1-5947 -1-4566 -1-3911 -1-4596 -1-4566 -1- | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.25 -1.25 -1.25 -2.5 -2.5 -2.5 -2.5 -2.5 -1.50 -2.5 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 -1.50 -2.5 | CPW |
| 2499 X/L .888 .884 .888 .815 .825 .848 .868 .189 .148 .228 .388 .388 .468 .588 .588 .588 .588 | .702 CP 1-0738 .0980 2490 5162 7536 9829 -1-1705 -1-3087 -1-474 -1-4947 -1-4947 -1-4947 -1-495 -1-4627 9752 6467 6195 6142 | 5.96 XW/L -5.25 -4.58 -3.425 -1.26 -1.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -2.25 | J. 88 CPW0862086208620862086208630852131221212291229516511 | 2500 X/L | .699 CP 1.00300916446170209193 -1.1691 -1.3133 -1.4540 -1.5243 -1.5789 -1.6169 -1.6133 -1.6222 -1.6169 -1.6133 -1.6282 -1.6169 -1.6176 -1.9080 -879177626650 | 5.95 XW/L -5.25 -4.58 -3.75 -3.00 -2.25 -1.50 -1.25 -2.50 -0.00 -7.75 1.00 1.25 1.50 1.25 1.50 1.50 | 4.00 CPW 0095 0053 .00653 .00653 .0064 0117 .0834 0812 0164 1574 2521 3795 2722 2722 2118 1275 | 2591 X/L -899 -808 -8125 -849 -189 -146 -146 -266 -349 -349 -469 -469 -469 | .788 CP .9812 -14963 -4968 -747 -9665 -1.2186 -1.3542 -1.4973 -1.6328 -1.6249 -1.6328 -1.6499 -1.6328 -1.6499 -1.6328 -1.6499 -1.6328 -1.6499 -1.6328 -1.7966 | 5.91 XW/L -5.25 -4.50 -3.75 -3.85 -1.50 -1.25 -1.98755025 -1.502525252525252525 | 4-50 CP W - 00 43 - 00 66 - 01 26 - 00 38 - 01 25 - 04 40 - 07 90 - 23 73 - 36 79 - 27 70 - 27 70 - 21 17 8 - 21 17 8 - 21 17 8 - 21 17 8 - 21 18 8 | 2502 X/L .000 .004 .008 .015 .025 .040 .100 .100 .100 .100 .100 .200 .300 .300 .300 .300 .300 .300 .3 | .699 CP .9543 -2056 -5448 -794 -1.0235 -1.2631 -1.3923 -1.5973 -1.6673 -1.6673 -1.6466 -1.3911 -1.2599 -1.4681 -9440 -8554 | 5.90 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.25 -1.25 -1.25 -2.50 -2.5 | CP W |
| 2499 X/L .000 .004 .008 .015 .0225 .040 .100 .100 .100 .100 .100 .100 .100 | .702 CP 1.0738 .0949 5162 7536 9829 -1.1705 -1.3364 -1.3837 -1.4749 -1.4947 -1.4947 -1.495 -1.495 -1.4661 -1.466 | 5.96 XW/L -5.25 -4.58 -3.825 -1.58 -1.25 -1.88 -2.25 -1.89 -2.25 -1.89 -2.25 -2.358 -2.358 -2.358 -2.358 -2.358 -2.358 -2.358 | J. 88 CPW08620816086208660868086808737131221212239221517351851072518610725066107570873 | 2500 X/L | .699 CP 1.00300916446170209193 -1.1691 -1.3133 -1.4540 -1.5943 -1.5789 -1.5931 -1.6222 -1.5931 -1.6221 -1.6169 -1.6133 -1.6231 -1.6169 -1.6133 -1.627 -2.76650 -2.775 -2.775 -2.775 | 5.95 XW/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.58 -1.25 -1.25 -1.25 -5.25 -1.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 | 4.00 CPW 0095 0032 0053 0063 0063 0168 0468 0468 0468 0468 0561 2795 2722 2118 1561 2795 2722 2722 2722 2722 2722 2723 2725 2725 2725 2726 | 25#1 X/L ### 48 5 5 ## 48 6 ## | .788 CP .9812 -1493 -4968 -747 -9665 -1.2186 -1.3542 -1.492 -1.492 -1.6329 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.25 -1.00 -7.52 -5.00 -7.52 -5.00 -7.53 -5.00 -7.53 -5.00 -7.53 -5.00 -7.53 -5.00 -7.53 -5.00 -7.53 -5.00 | 4-50 CP W - 00 43 - 00 46 - 00 48 - 00 48 - 00 48 - 00 48 - 00 38 - 01 25 - 04 91 - 150 23 - 32 32 - 257 90 - 217 90 - 1365 - 1185 - 1185 - 0185 - | 2 502 X/L .000 .0046 .015 .0400 .0800 .10800 .11800 .22600 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 .3400 | .699 CP .9543 -2058 -5448 -794 -1.0235 -1.2631 -1.3960 -1.5237 -1.45667 -1.45667 -1.4566 -1.597 -1.4566 -1.597 -1.4556 -1.7597 -1.4556 -1.7597 -1.4556 -1.7597 -1.4556 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -2.50 -2.50 -3.75 -3.00 -2.25 -1.2 | CPW -0038 -0038 -0038 -00453 -01538 -0168 -0453 -12473 -12473 -12473 -12879 -2879 -2879 -1416 -1116 -1116 -1116 -10871 -08874 |
| 2499 X/L .088 | .702 CP 1-0738 .0980 -2490 -5162 -7536 -9829 -1.1705 -1.3364 -1.4741 -1.4569 -1.4947 -1.4942 -1.4921 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 -1.4621 | 5.96 XW/L -5.25 -4.56 -3.75 -3.425 -1.26 -1.25 -2.25 -1.26 -7.56 | J. 88 CPV - 0862 - 9818 - 9862 - 9866 - 9868 - 98737 - 1312 - 2891 - 2239 - 2215 - 11772 - 1851 - 9818 - 98737 - 9818 - 98737 - 9818 - 98737 - 9818 - 98737 - 9818 - 98737 - 9818 - 98737 - 9818 - 98737 - 9818 - 98 | 2500 X/L | .699 CP 1.88388916446178289193 -1.1691 -1.3133 -1.4548 -1.5246 -1.5246 -1.5246 -1.5246 -1.5246 -1.622 -1.6133 -1.6231 -1.6169 -1.6133 -1.627 -1.217896808791776967047252775277529978156 | 5.95 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.25 -1.25 -1.25 -1.25 -1.25 -1.25 -2.58 | 4.88 CPW 0895 0832 0853 0863 0863 0864 15761 2721 2722 2118 2722 2128 2722 2723 | 25#1 X/L ### 485 5 5 ## 486 6 | .788 CP .9812 -1493 -4968 -747 -9665 -1.2186 -1.3542 -1.497 -1.6329 -1.6329 -1.6329 -1.6328 -1.6389 -1.4983 -1.4983 -1.4983 -1.5588 -1.3415 -1.1955 -1.1955 -1.1955 -1.1975 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.50 -2.50 | 4-50 CP W - 00 43 - 00 66 - 01 26 - 01 26 - 01 36 - 01 36 - 01 37 - 1 53 73 - 32 37 - 25 70 - 1 1 365 - 1 1 | 2 502 X/L .0004 .0048 .015 .0400 .0800 .1400 .1400 .1400 .2200 .3400 .3400 .3400 .3400 .5000 . | .699 CP .9543 -2056 -5948 -794 -1.0235 -1.2631 -1.3960 -1.5237 -1.4566 -1.5973 -1.4566 -1.3911 -1.2599 -1.4489 -1.0631 -9440 -8554 -8560 -7517 -6541 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.25 -1.25 -1.25 -1.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -3.7 | 5-00 CP W -0038 -0038 -0038 -0048 -0158 -018 |
| 2499 X/L .089 .084 .088 .015 .025 .048 .060 .080 .148 .156 .220 .238 .348 .428 .428 .558 .628 .788 .798 .778 .778 .778 .778 | .702 CP 1-0738 .0980 -2490 -5162 -7536 -9829 -1.1705 -1.3364 -1.3837 -1.4741 -1.4947 -1.4947 -1.4959 -1.4021 -1.4621 - | 5.96 XW/L -5.25 -4.56 -2.25 -1.26 -1.25 -1.26 -2.56 | CPW - 08662 - 0816 - 08662 - 08668 - 0843 - 0852 - 0186 - 0833 - 0737 - 1312 - 2891 - 2235 - 1772 - 1851 - 0573 - 0484 - 0848 - 0894 - 0894 | 2500 X/1. 6004 6008 6015 6024 6020 6020 6020 6020 6020 6020 6020 | .699 CP 1.0030 -0916 -4461 -7928 -913 -1.1691 -1.3133 -1.4548 -1.5246 -1.5931 -1.6231 -1.6231 -1.6169 -1.2178 -9690 -2.7762 -6658 -4725 -2775 -0997 -6997 -6997 -6938 | 5.95 XV/L -5.25 -4.50 -3.75 -3.80 -1.25 -1.26 -1.25 -1.26 -2.25 -2.25 -2.25 -3.30 -3.75 -3.30 -3.75 -3.30 -3.75 -3.30 -2.25 | 4.00 CPW -0032 -0053 -0063 -0117 -0032 -0168 -0462 -0462 -1574 -252! -1567 -1574 -252! -2722 -2722 -2728 -27 | 2591 X/L 994550 -0004550 -001 | .788 CP .9812 -1493 -4968 -7477 -9665 -1.2186 -1.3542 -1.4977 -1.5593 -1.6329 -1.6329 -1.6329 -1.6329 -1.6328 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.00 -2.25 -1.00 -2.25 -1.00 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 -2.50 -2.25 | 4-50 CP W - 00 43 - 00 66 - 01 68 - 00 61 8 - 01 25 4 - 01 25 4 - 01 25 4 - 01 25 7 7 - 01 61 65 8 - 01 65 7 - 01 61 61 7 - 01 61 7 7 7 - 01 61 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 2502 X/L .0004 .0048 .015 .0400 .0800 .1400 .1400 .2200 .3400 .3400 .3400 .3400 .3400 .5000 .5000 .5000 .5000 .5000 .5000 .5000 .5000 .5000 .5000 .5000 .5000 | .699 CP .9543 -2954 -2954 -19235 -1-2631 -1-3960 -1-5237 -1-6618 -1-5247 -1-4556 -1-3911 -1-4599 -1-4556 -1-3911 -1-4590 -1-5581 -3784 -3784 -3784 -3784 -3784 -3784 -3784 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.25 -1.20 -7.50 -2.50 -7.50 -2.50 -7.5 | 5-00 CP W -0038 -0038 -00482 -0158 -0188 -0188 -0188 -01753 -122016 -228773 -228773 -228773 -21865 -1416 -0589 -0188 |
| 2499 X/L .000 .001 .002 .002 .003 .002 .003 .003 .003 .003 | .782 CP 1.8738 .8988 -2498 -1562 -17536 -19829 -1.1785 -1.3364 -1.3837 -1.4747 -1.4947 -1.4947 -1.495 -1.495 -1.462 -1.465 -1.462 -1.465 -1.46 | 5.96 XW/L -5.25 -4.75 -3.025 -1.26 -1.26 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -1.06 -2.25 -3.06 | J. ### CPW - ### 6862 - ### 6862 - ### 6868 | 2 5 8 8 8 7 1 | .699 CP 1.6030891679289193 -1.1691 -1.3133 -1.4548 -1.5246 -1.5931 -1.6222 -1.6169 -1.6133 -1.6231 -1.6231 -1.669 -1.2178 -9608 -8791 -7762 -6558 -2775 -6997 -8003 | 5.95 XV/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.25 -1.26 -2.25 -2.50 -3.75 -2.60 -2.25 -3.75 -3 | 4.00 CPW -00832 -0053 -00834 -0117 -0032 -0168 -0462 -0462 -1574 -2521 -1561 -1574 -2722 -2722 -2722 -2118 -1587 -1117 -0833 -0846 -1587 -1117 -0833 -0866 -1117 -0863 -0866 - | 2 5 4 6 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | .788 CP .9812 -1493 -4968 -7477 -9665 -1.2186 -1.3542 -1.4977 -1.5582 -1.6349 -1.6329 -1.6349 -1.4983 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -7.25 -1.00 -7.50 -1.25 -5.00 -7.25 -5.00 -7.25 -5.00 -7.25 -5.00 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.25 -7.20 -7.25 | 4-50 CPW -0043-00466-01666-016682 | 2502 X/L .000 .004 .008 .015 .040 .080 .140 .140 .220 .340 .340 .340 .340 .340 .340 .340 .34 | .699 CP .9543 -2058 -5448 -7924 -1.0235 -1.2631 -1.3960 -1.5237 -1.6673 -1.6673 -1.4566 -1.3911 -1.4566 -1.3911 -1.2599 -1.1489 -1.5581 -9440 -8554 -8600 -7517 -684 -1.593 | 5.90 XV/A5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -7.75 -5.00 -2.25 -1.00 -7.75 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 -2.25 -5.00 | 5.00 CP W - 6038 - 0038 - 00483 - 00182 - 01182 - 01443 - 01443 - 12270 - 22876 - 1210 - 1210 - 01849 - 01 |
| 2499 X/L .088 .084 .088 .015 .0225 .048 .089 .148 .128 .228 .348 .428 .428 .558 .558 .558 .558 .558 .558 .558 .5 | .702 CP 1.0736 .0900 -2490 -5162 -7536 -9829 -11.705 -1.3364 -1.4741 -1.4947 -1.4947 -1.4947 -1.4947 -1.4948 -1.495 -1.4621 -60366 -3232 -60467 -6192 -60731 -60738 -6731 -6738 | 5.96 XW /L -5.25 -4.57 -3.425 -1.25 -1.25 -2.25 -1.25 -2.2 | J. 88 CP W - 88 62 41 85 24 185 24 185 24 185 28 18 | 2500 X/L | .699 CP 1.00300916446170209193 -1.1691 -1.3133 -1.4548 -1.5789 -1.5789 -1.5931 -1.6222 -1.5931 -1.6221 -1.6169 -1.6133 -1.6231 -1.6169 -1.21789600879177626650472527752775277527952775279527752795277527752795277527952775279527752795277527752795277527952775279527752795277527952775279527752795 | 5.95 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.26 -7.56 -2.56 | 4.00 CPW 0095 0032 0053 0063 0063 0168 0462 0168 0464 1574 2521 3795 2722 2118 1561 1276 2722 2722 2118 1276 | 2 5 L 9485 5 5 9 9 9 8 8 8 8 8 8 9 9 9 9 9 9 9 9 | .788 CP .9812 -1493 -4968 -747 -9665 -1.2186 -1.3542 -1.4977 -1.6389 -1.6389 -1.6389 -1.6389 -1.6189 -1.4983 -1.6389 -1.4983 -1.6389 -1.4983 -1.6189 -1.4983 -1.9726 -8881 -3896 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 -1195 -8886 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.25 -1.50 -2.55 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -6.50 -7.55 -6.50 -7.55 -6.50 -7.55 -6.50 -7.55 -6.50 -7.55 | 4-50 CP W -00466 -0 | 2 502 X/L .000 400 6015 .0400 .0015 .0400 .0080 .1080 .1080 .1480 .2600 .3400 .3400 .3400 .3600 .3400 .3600 .3600 .3600 .3600 .3600 .5800 .3600 .5800 .3600 .5800 .3600 .5800 .3600 .5800 .3600 .5800 .3600 .5800 .3600 | .699 CP .9543 -2058 -5448 -7924 -1.0235 -1.2631 -1.3960 -1.5237 -1.6673 -1.6673 -1.4566 -1.3911 -1.4566 -1.3911 -1.4566 -1.3911 -1.5591 -1.6631 -9440 -8554 -8600 -7517 -684 -1.593 -1.6633 -943 -1.683 -1.378 -1.3888 -1.3888 -1.3888 -1.3888 -1.3888 -1.3888 -1.3888 -1.3888 -1.3 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.00 -2.5 - | 5.00 CPW -0038-00378-0038-004682-01538-01 |
| 2499 X/L .088 .089 .089 .015 .0225 .040 .089 .148 .128 .228 .228 .348 .388 .428 .569 .569 .578 .789 .975 .789 .975 .789 .975 .789 .975 .789 .975 .789 .975 .789 .975 .789 .975 .789 | .702 CP 1.0738 .0900 -2490 -5162 -7536 -9829 -11705 -1.3364 -1.4741 -1.4741 -1.4947 -1.4947 -1.4947 -1.4947 -1.4947 -1.4921 -1.4621 -1 | 5.96 XW /L -5.25 -4.375 -3.425 -1.25 -1.25 -2.25 -2.25 -1.25 -2.25 | J. 88 CPV - 08662 - 0816 | 2500 X/100488915500486001122000112200011220001230001200012000 | .699 CP 1.0030091670201091 -1.3133 -1.4540 -1.5246 -1.5931 -1.5256 -1.5256 -1.6231 -1 | 5.95 XW/L -5.25 -4.58 -3.75 -3.86 -2.25 -1.25 -1.25 -1.25 -1.25 -1.25 -2.5 -2.5 -2.5 -2.5 -2.5 -3.75 - | 4.00 CPW 0895 0832 0953 0963 0963 1574 | 25 # 1 | .788 CP .9812 -1493 -4968 -7477 -9665 -1.2186 -1.3542 -1.4973 -1.6329 | 5.91 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -2.50 | 4-50 CP W 432-00466 -00466-00 | 2 502 X/L .0004 .0046 .015 .0400 .0800 .1000 .1400 .1220 .2600 .3400 .3400 .3400 .3400 .3600 . | . 699 CP . 9543 - 2058 - 5448 - 794 - 1-0235 - 1-2631 - 1-3960 - 1-5237 - 1-6673 - 1-6673 - 1-6673 - 1-6673 - 1-6547 - 1-4566 - 1-3911 - 1-259 - 1-1489 - 1-1631 - 9440 - 8554 - 8606 - 7517 - 6841 - 8784 - 8554 - 8666 - 8594 - 86635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13635 - 13655 - 136 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.60 -2.5 -1.60 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 | 5.00 CPW -0038-00378-0038-0038-0028-001538-0153 |
| 2499 X/L .888 .884 .888 .815 .825 .848 .866 .880 .188 .228 .388 .388 .428 .588 .988 .988 .988 .988 .988 .988 .98 | .702 CP 1-0738 .0900 -2490 -2562 -27536 -9829 -1.1705 -1.3364 -1.4859 -1.4947 -1.4947 -1.4947 -1.4955 -1.4627 -9752 -6142 -6043 -5366 -3232 -8977 -8179 -8562 -8189 -8555 -6738 -8595 -6738 -8595 -6738 | 5.96 XW /L 5.26 -4.57 -3.82 -1.26 -1.27 -5.26 -1.27 -5.26 -1.27 -5.26 -1.27 -5.26 -5.27 -5.26 -5.27 -5.26 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -5.27 -6.27 - | J. ### CPW | 2 5 8 8 8 7 1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .699 CP 1.0030091670201091 -1.3133 -1.4540 -1.5246 -1.5931 -1.6222 -1.6169 -1.6133 -1.6231 -1.6169 -1.6133 -1.6231 -1.6169 -1.6169 -1.6169 -1 | 5.95 XW/L -5.25 -4.50 -3.75 -3.825 -1.25 -1.25 -1.25 -2.25 -2.25 -2.25 -2.25 -3.75 | 4.00 CPW 0095 0053 .0008 .0117 .0032 0168 1574 2521 1561 1574 2521 1561 1574 2722 2122 2128 2127 2 | 2 5 | .700 CP .9812 -1493 -4963 -747 -9665 -1.2186 -1.3542 -1.4973 -1.6329 -1.6329 -1.6328 -1.6499 -1.6328 -1.6499 -1.6328 -1.6999 -1.6189 -1.1095 - | 5.91 XW/L -5.25 -4.59 -3.82 -1.25 -1.88 -2.25 -2.58 -1.88 -2.58 -2.58 -3.75 -3.88 -3.75 -4.58 -3.75 -4.58 -3.75 -4.58 -3.75 -4.58 -3.75 -4.58 -3.75 -4.58 -3.75 -3.88 | 4-50 CP 4 - 00446 - 00466 - | 2 502 X/L .000 4 .008 6 .015 .008 0 .015 .008 0 .140 0 .220 .080 0 .140 0 .220 .300 0 .340 | .699 CP .9543 -2058 -5448 -794 -1.0235 -1.2631 -1.3960 -1.5237 -1.66184 -1.5973 -1.6184 -1.5497 -1.4566 -1.3911 -1.2599 -1.1489 -1.8554 -8584 | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -1.25 -1.00755025 -1.00755025505050505050505 | 5-00 CP W |
| 2499 X/L .000 .001 .002 .002 .003 .002 .003 .003 .003 .003 | . 782 CP 1-8738 . 8989 - 2498 - 2498 - 1562 - 19829 - 1-1785 - 1-3364 - 1-4947 - 1-4947 - 1-4959 - 1-4947 - 1-4959 - 1-4959 - 1-4821 - 1-4629 - 1-4821 - 1-4629 - 1-4821 - 1-4 | 5.96 X W /L 5.25 -4.57 -3.82 -1.25 -1.25 -1.25 -1.25 -2.25 -2.25 -3.75 -3.75 -1.25 | J. ### CP W | 2 5 6 6 6 7 7 8 6 7 8 7 8 7 8 8 8 8 8 8 8 8 | .699 CP 1.0030091679201.1691 -1.3133 -1.4540 -1.5246 -1.5931 -1.5246 -1.5931 -1.6231 -1.6231 -1.6231 -1.6231 -1.6231 -1.6169 -1.6133 -1.6231 -1.6169 -1.6139 | 5.95 XV /L -5.25 -4.50 -3.75 -3.86 -1.25 -1.86 -1.25 -2.85 -2.85 -2.86 -2.25 -3.75 -3.86 -2.25 -3.75 -3.76 -2.25 -3.75 -3.76 -2.25 -3.75 - | 4.00 CPW 0095 0053 00653 00653 00653 00653 00653 00653 1574 2795 2722 2126 2726 - | X | .700 CP .9812 -1493 -4968 -747 -9665 -12186 -13542 -1.4977 -1.6329 -1.6329 -1.6328 -1.6499 -1.6328 -1.6499 -1.6328 -1.6999 -1.6689 -1.1996 -8081 -7596 -6675 -5180 -3249 -1666 -6779 -6881 -17596 -6961 -9794 -667 -9812 -9794 -667 -9812 -9794 -9812 -9794 -9812 -9794 -9812 -9794 -9812 -9794 -9812 -9794 -9812 -9794 -9812 -9812 -9794 -9812 -9794 -9812 | 5.91 XW/L -5.25 -4.59 -3.825 -1.59 -1.25 -5.56 -5.66 -1.25 -1.59 -1.59 -1.25 -1.59 -1.25 -1.59 -1.25 -1.59 -1.25 -1.59 | 4-50 CP 4 - 004466 - 004668 - 004668 - 004668 - 004668 - 004 | 2 502 X/L .000 4 .008 6 .015 .008 0 .015 .008 0 .140 0 .140 0 .140 0 .150 0 .160 0 . | .699 CP .9543 -2058 -5448 -794 -1.0235 -1.2631 -1.3960 -1.5237 -1.6618 -1.5973 -1.6664 -1.3911 -1.2599 -1.1456 -1.3911 -1.2599 -1.1456 -1.3911 -1.2599 -1.1683 -2299 -1.1683 -2591 -2581 | 5.90 X V // -5.25 -4.50 -3.75 -3.00 -1.25 -1.00755025 -1.0075502525252525252525 | 5-00 CP W - 6038 |
| 2499 X/L -000 -004 -008 -015 -025 -040 -068 -060 -199 -140 -540 -540 -540 -540 -540 -540 -540 -5 | . 782 CP 1. 8738 . 8989 - 2499 - 1562 - 17536 - 19829 - 11785 - 13364 - 11. 4859 - 1. 4947 - 1. 4947 - 1. 4951 - 1. 4669 - 1. 4821 - 1. 4621 - 1. | 5.96 XW /L -5.25 -4.575 -1.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -2.2 | J. ### CP W | 2 5 6 6 6 7 7 8 8 8 8 8 1 5 5 6 8 8 8 8 1 5 5 6 8 8 8 8 1 5 5 6 8 8 8 8 1 5 6 8 8 8 8 8 1 5 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .699 CP 1.083009167920191691 -1.3133 -1.4548 -1.5246 -1.5931 -1.6222 -1.6231 -1.6169 -1.6133 -1.6231 -1.6169 -1.6133 -1.621866586725672567586725795781686725795781684725 | 5.95 XW/L -5.25 -4.58 -3.75 -3.825 -1.25 - | 4.00 CPW 0895 0832 0863 0863 0862 0864 1574 2521 37615 2722 218 37615 2722 218 37615 2722 218 37615 2722 2722 218 37615 2722 | 2 / | .788 CP .9812 -1493 -4968 -7477 -9665 -1.2186 -1.3542 -1.4977 -1.5593 -1.6329 -1.6329 -1.6329 -1.6328 -1.6189 -1.4983 -1.4983 -1.4983 -1.4983 -1.4983 -1.9726 -8884 -77596 -8878 -1.9726 -8878 -8878 | 5.91 XW/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.56 -1.25 -5.66 -2.56 | 4-50 CPP 432-666618-606268-6063264-609264-6963264-6963264-6963264-697323798-6257332798-62576885774-6962656326-6962656326-696266885734728-69688553974428-696885556326-696274428-696885556326-696274428-696885559744-69688556326-696274428-696885559744-7868559744-7868559744-7868559744-7868559744-7868559744-7868559744-7868559744-786859744-786859744-786859744-786859744-786859744-786859569-7868559569-7868559569-7868559569-7868559569-7868559569-7868559569-78685959-7868559569-78685959-786859-7 | 2 500 2 X/L 00048 0015 0400 0800 1400 1400 1400 1400 1500 160 | .699 CP .9543 -2056 -19235 -1-2631 -1-3960 -1-5237 -1-66184 -1-5237 -1-66184 -1-52497 -1-4566 -1-3911 -1-2590 -1-1489 -1-6841 -3-540 -3-550 - | 5.90 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -7.50 -2.50 -7.50 | 5-00 CP W - 60387882000000000000000000000000000000000 |
| 2499 X/L .000 .004 .008 .015 .025 .040 .060 .160 .120 .220 .380 .380 .380 .380 .380 .380 .380 .38 | . 702 CP 1-0738 .0980516275369829 -1.1705 -1.3364 -1.2387 -1.474621 -1.4947 -1.4947 -1.4821 -1.4621 | 5.96 XW /L 5.265 -4.375 -1.265 -1.2 | J. ### CPW - ### 62 - ### 64 68 68 68 68 68 68 68 68 68 68 68 68 68 | 2 5 6 6 6 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .699 CP 1.003009167929 -1.1091 -1.3133 -1.4540 -1.5246 -1.5789 -1.5789 -1.5789 -1.6133 -1.6212 -1.6139 | 5.95 XW/L -5.25 -4.58 -3.75 -3.86 -2.25 -1.26 -1.25 -1.26 -2.58 -2.58 -5.25 -4.58 -5.25 -4.58 -5.25 -1.26 -5.25 -7.55 -7 | 4.00 CPW 0895 0832 08632 09634 157 | X | .700 CP .9812 -1493 -49665 -1-2106 -1-3542 -1-4977 -1-5503 -1-6329 -1-6329 -1-6329 -1-6329 -1-6499 -1-6326 -1-4903 -1-3415 -1-690 -1-69 | 5.91 XW/L -5.25 -4.50 -2.25 -1.25 | 4-50 CPP 4 32-668618-69825-4-118886531-74-12886531-7-8-118886531-7-8-1118886531-8-1118886531-7-8-118886531-7-8-118886531-8-118886531-8-118886531-8-118886531-8-118886531-8-118886531-8-1188886531-8-1188886531-8-11 | 2 502 X/L .000 .0040 .0050 . | .699 CP .9543 -2058 -5448 -794 -1.0235 -1.2631 -1.3960 -1.5237 -1.6631 -1.5237 -1.6664 -1.3911 -1.2599 -1.1489 -1.940 -8554 -8686 -7517 -6841 -5581 -3784 -2299 -1.1693 -1.1693 -2.1503 -2.15 | 5.90 XW/L -5.25 -4.50 -3.75 -3.025 -1.25 -1.00 -2.25 -2.50 -5.25 -4.50 -2.25 -2.75 -3.00 -2.25 -4.50 -7.75 -3.00 -7.75 -4.50 -7.75 -4.50 -7.75 -7.00 -7.00 | 5-00 CP W 887-8882 - 00184536 - 001845 |
| 2499 X/L -000 -004 -008 -015 -025 -040 -068 -060 -199 -140 -540 -540 -540 -540 -540 -540 -540 -5 | . 782 CP 1. 8738 . 8989 - 2499 - 1562 - 17536 - 19829 - 11785 - 13364 - 11. 4859 - 1. 4947 - 1. 4947 - 1. 4951 - 1. 4669 - 1. 4821 - 1. 4621 - 1. | 5.96 X W 25.96 - 3.75.96 - 3.825.96 - 1.25.96 - 1.25.96 - 2. | CPW08662081680868086808680868086808680868086808680868086808680868 | 2 5 6 6 6 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .699 CP 1.003009167929 -1.1091 -1.3133 -1.4540 -1.5246 -1.5789 -1.5789 -1.5789 -1.6133 -1.6212 -1.6139 | 5.95 XV /L -5.25 -4.50 -3.75 -3.86 -1.25 -1.86 -2.25 -2.86 -2.25 -2.86 -2.25 -3.75 -3.76 -3.75 -4.56 -1.25 - | 4.00 CPW0952095309634157425211587158711772118 | X | .700 CP .9812 -1493 -49665 -1-2106 -1-3542 -1-4977 -1-5503 -1-6329 -1-6329 -1-6329 -1-6329 -1-6499 -1-6326 -1-4903 -1-3415 -1-690 -1-69 | 5.91 XW/L -5.25 -4.87 -3.82 -1.26 -1.26 -1.26 -1.26 -1.27 -2.26 -2.26 -2.26 -2.26 -2.26 -2.26 -3.75 -3.86 -3.87 -3.86 -3.87 -3.86 -3.87 -3.86 -3.87 -3.86 -3.87 -3.86 -3.87 -3.87 -3.88 | 4-50 CPP 432-668618-6983264-6983264-6983264-6983264-6983264-6973237988-6983264-697327-118538774-7853674-698556326-6885556326-688556326-69856556326-69856556326-69856556326-69856556326-6985688556326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985656326-6985665656-6985665656-69856656-69856656-6985668-69856 | 2 502 X/L .000 .0040 .0050 . | .699 CP .9543 -2058 -5448 -794 -1.0235 -1.2631 -1.3960 -1.5237 -1.6631 -1.5237 -1.6664 -1.3911 -1.2599 -1.1489 -1.940 -8554 -8686 -7517 -6841 -5581 -3784 -2299 -1.1693 -1.1693 -2.1503 -2.15 | 5.90 X.V.A5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -7.55 -5.00 -2.25 -1.00 -7.51 -0.00 -7.52 -0.00 -7.52 -0.00 -7.52 -0.00 -7.50 | 5-00 CP 9 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 |

| | Table | e 3.4 | Conti | nued | | | | | | | | | | | | |
|---|--|--|--|---|--|--|--|--|---|---|--|--|--|--|--|--|
| _ | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA |
| | 2504 | .759 | 4-11 | - 50 | 2505 | .761 | 5-10 | - 50 | 2506 | .760 | 5.81 | - 50 | 2507 | .763 | 7.83 | - 50 |
| | X/L | СР | XWAL | CPW | X/L | CP | XW/L | CPW | X/L | CP | XVL | CPW | x1 | CP | XWA | CPW |
| | .000 | 1-1454 | -5.25 | 0095 | .000 | 1 - 1 460 | -5.25 -4.50 | 0084 0073 | .000 | 1-1518 | -5.25 | 0082 | -000 | 1-1498 | -5.25 | 0078 |
| | .004 | · 6958 · 4124 | -4.50 -3.75 | 0059 | .004 .008 .015 | .7001 .4160 .1356 | -3.75 | 0016 .0027 | -004 -008 -015 | .7077 .4220 .1368 | -4.50 -3.75 -3.60 | .0013 .0055 | .004 .008 .015 | .7117 .4260 .1491 | -4.50 -3.75 -3.00 | 0055 0003 -0038 |
| | .015 .025 | -1278 1886 3799 | -3.00 -2.25 -1.50 | - 6036 - 6074 - 6118 | ·025 | 1074 | -2.25 -1.50 | -0084 -6099 | .025 | 1021 | -2.25 | .0108 .0109 | .025 | 0877 3448 | -2.25 | .0106 .0093 |
| | .060 | 4911 | -1.25 | - 0077 - 0038 | .060 .080 | - · 4714 - · 8531 | -1.25 -1.00 | .0060 | -060 | 4605 8586 | -1.25 | • 0093 • 0039 | .068 .088 | 41 68 8624 | -1.25 | .0069 .0033 |
| | -140 | 8979 | 75 50 | 0104 | -100 | 8972 | 75 | 0087 | -140 | 9813 | 75 | 0112 | -140 | 8956 9268 | 75 | 0077 |
| | .180 | 9848 | 25 | 0587 | -180 | 8908 9121 9024 | 25 .00 | 0605 1132 1776 | -189 -229 -269 | 8913 9101 9010 | 25 . 00 . 25 | 0548 1146 1757 | -180 -220 -260 | 8883 9128 9883 | 25 .00 | 0588 |
| | . 300 | 9027 | .25 | 1741 | .260 .300 | 8627 | .50 | 2112 | -300 | 8698 | • 50 • 75 | 2092 | -300 -340 | 8697 | · 50 | 1814 2116 1699 |
| | .340 .380 .420 | 9126 9268 9243 | .75 1.00 1.25 | 1653 1658 1300 | - 380 - 420 | 9189 9130 | 1.00 | 1669 | · 380 · 420 | 9893 | 1.00 | 1687 1303 | · 388 | 9141 | 1.00 | 1699 1333 |
| | · 460 | 8393 | 1.50 | 09 49 07 68 | - 460 - 500 | 8467 | 1.50 | 0978 | - 460 - 500 | 7565 5852 | 1.50 | 0959 0745 | · 460 · 500 | 8881 7493 | 1.50 | 0995 0763 |
| | • 540 • 580 | 6083 7230 | 2.00 | 0682 0581 | • 540 • 580 | 6130 7186 | 2.00 | 0651 | • 540 • 580 | 6230 | 2.25 | 0618 | · 540 | 6479 6766 | 2.25 | 0669 0512 |
| | · 620 · 700 | 7547 5357 | 2.50 2.75 | 0546 | .620 .700 .800 | 7614 5366 2932 | 2.50 2.75 3.50 | 0494 0455 0407 | - 620 | 8052 | 2.50 | 0514 | · 620 | 7431 5529 2985 | 2.75 | 0503 0462 |
| | .900 | 2904 | 3.50 -5.25 | 0414 | .900 | 0686 | -5.25 -4.50 | 0025 | .800 .900 | 2910 0685 .0253 | 3.50 -5.25 -4.50 | 0394 0032 0048 | .888 .988 | 0689 -0333 | 3.56 -5.25 -4.50 | 0394 0032 0053 |
| | .950 .975 | -0160 -0478 -0703 | -4.50 -3.75 -3.00 | 0026 -0058 -0076 | .975 1.000 | .0553 | -3.75 -3.00 | .0068 .0111 | .975 | .0615 | -3.75 | .0031 .0095 | .975 | .0716 .1026 | -3.75 -3.00 | .0019 |
| | .000 | 1.1454 | -2.25 -1.50 | ·0160 ·0293 | - 000 | 1.1460 | -2.25 -1.50 | .0201 .0301 | -000 | 1.1518 | -2.25 | .0158 .0254 | -000 | 1.1498 | -2.25 -1.50 | .0180 .0281 |
| | .008 | ·0347 0459 | -1.25 | .0300 .0368 | • 020 • 020 | •0385 -•0363 | -1.25 | .0344 | -028 -028 | .0387 0325 | -1.25 | .0333 .0378 | .008 .020 | .0286 0374 | -1.25 | .0310 .0382 |
| | · 050 | .0038 1152 | 75 50 | .0415 .0461 | -050 -100 | 1091 | 75 | .0413 .0441 | -050 -100 | -0245 1052 | 75 | .0380 .0439 | . 100 | 1073 | - · 75 - · 50 | .0398 .0449 |
| | ·150 | 2251 | 25 | - 0440 - 0416 | -150 -200 -250 | 2163 3212 4143 | 25 .00 | .0432 .0441 .0405 | -150 -200 -250 | 2109 3148 4075 | 25 -00 -25 | .0441 .0383 .0380 | -150 -200 -250 | 2131 3157 4111 | 25 | .0440 .0428 .0372 |
| | ·250 | 4268 | ·25 | .0337 .0337 | ·350 ·450 | 4129 | •50 •75 | .0371 | · 350 · 450 | 4100 | ·50 | .0379 .0393 | ·350 | 4111 | .25 .50 .75 | .0372 .0369 .0397 |
| | • 450 • 550 • 650 | 2761 0897 .0727 | 1.00 1.25 | .0372 .0330 .0372 | • 550 • 650 | 0896 -0771 | 1.00 | .0405 | · 550 | 0878 | 1.00 | .0384 .0398 | · 550 | 0932 | 1.00 | .0403 .0375 |
| | .750 .850 | ·2163 | 1.50 | ·0327 | -750 -850 | ·2246 | 1.50 | .0332 | .750 .850 | ·2293 | 1.50 | .0323 .0244 | .750 .850 | ·2338 | 1.50 | .0313 .0221 |
| | 1.000 | .0703 | 2.00 | .0108 0095 | 1.000 | .0821 | 2.00 | 0084 | 1-000 | -0902 | 2.00 | ·0158 | 1-000 | .1326 | 2.25 | -0141 0078 |
| | | | 2.50 2.75 3.50 | 0059 - 0011 - 0030 | | | 2.50 2.75 3.50 | 0073 0016 .0027 | | | 2.50 2.75 3.50 | 0050 .0013 .0055 | | | 2.50 2.75 3.50 | 0055 0003 .0038 |
| | | | | | | | | | | | | | | | | |
| | NR. 2506 | MACH .762 | E-6+RE | ALPHA | NR. 25 0 9 | MACH •758 | E-6*RE | ALPHA | NR. 251 6 | MACH . 768 | E-6+RE 13-41 | ALPKA • 50 | NR- 2511 | MACH - 407 | E-6*RE | AL PHA |
| | 2568 X/L | •762 CP | 10.07 XV/L | -56 CPV | 25 8 9 | •758 CP | 11.77 XV/L | •50 CPV | 2510 X/L | .768 CP | 13.41 XV/L | -50 CPW | | -407 CP | 5.40 XW/L | .50 |
| | 2508 X/L .000 .004 | .762 CP 1-1543 .7116 .4294 | XV/L -5.25 -4.50 -3.75 | - 58 CPV 6856 6659 - 6862 | 2509 | .758 | 11.77 | - 50 | 2510 | .768 | 13-41 | -56 CPV 0118 0664 0619 | 2511 X/L .000 | .407 CP 1.0354 .3556 | 5.40 XW/L -5.25 -4.50 | .50 CPW 0138 0160 |
| | 2508 X/L .000 .004 .006 .015 .025 | .762 CP 1.1543 .7110 .4894 .1445 | 10.07 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 | -58 CPV 0856 0059 0059 0104 | 2589 X/L .866 .864 .868 .815 .825 | .758 CP 1.1547 .7139 .4324 .1439 | 11.77 XV/L -5.25 -4.56 -3.75 -3.66 -2.25 | -50 CPV 0104 0081 0085 0045 0060 | 2518 X/L .888 .884 .888 .815 .825 | .768 CP 1.1569 .7113 .4252 .1458 | 13.41 XV/L -5.25 -4.50 -3.75 -3.60 -2.25 | -56 CPV 0116 0664 0619 -0650 088 | 2511 X/L .000 .004 .008 .015 | .407 CP 1.0354 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 | .50 CPW 0138 0160 0127 0041 |
| | 2588 X/L .000 .004 .008 .015 .025 .040 | .762 CP 1.1543 .7118 .4894 .1445 8919 3452 4165 | 10.07 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | - 58 CPV - 0856 - 0859 - 0862 - 0850 - 0104 - 0888 | 2589 X/L .868 .864 .815 .825 .848 .868 | .758 CP 1.1547 .7139 .4324 .143988493459 | XV/L -5.25 -4.56 -3.75 -3.66 -2.25 -1.56 | - 50 CPW 0104 0005 - 0045 - 0065 - 0079 | 2516 X/L .888 .884 .885 .815 .825 .848 .868 | .766 CP 1.1569 .7113 .4252 .1458 8528 3471 4624 | 13.41 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | - 56 CPV 0118 0064 0019 0050 0080 0110 0085 | 2511 X/L .000 .004 .008 .015 .025 .040 .060 | . 407 CP 1.0354 .3556 .0385 2307 4227 5772 6214 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | .50 CPW 0135 0160 0127 0041 0013 0076 |
| | 2508 X/L .000 .004 .008 .015 .025 | .762 CP 1.1543 .7119 .4294 .144589193452416586839837 | XV/L -5.25 -4.50 -3.75 -3.60 -2.25 -1.50 -1.25 -1.6075 | - 58 CPV 6856 6859 - 6862 - 6858 - 6184 | 2589 X/L .888 .884 .885 .815 .825 .848 .868 .888 | .758 CP 1.1547 .7139 .4324 .1439 8849 3459 4546 8477 | XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.26 | - 0104 - 0104 - 00051 - 0005 - 0005 - 00079 | 2510 X/L .000 .004 .005 .015 .025 .040 .060 .060 | .760 CP 1.1569 .7113 .4252 .1458 9828 3471 4624 8324 9150 | 13.41 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -75 | - 61 16 - 68 16 - 68 64 - 68 19 - 68 58 - 68 38 - 68 18 - 68 63 | 2511 X/L .000 .004 .008 .015 .025 .040 .060 .080 .100 | . 407 CP 1.0354 .3556 .0385 -2307 4227 5772 6214 6737 6578 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -75 | .50 CPW 0135 0160 0127 0041 0013 0162 0190 0316 |
| | 2588 X/L .000 .004 .005 .025 .040 .060 .100 .140 .156 .228 | .762 CP 1.1543 .7110 .4294 .1445 9919 3452 4165 8683 9837 9226 5819 | XV/L -5.25 -4.56 -3.75 -3.66 -2.25 -1.25 -1.667556 | CPV00560059 -0002010400880099006702360549 | 2509 X/L .000 .000 .000 .000 .000 .000 .000 .0 | .758 CP 1.1547 .7139 .4324 .1439 0849 3459 4546 8477 9233 9669 9988 9161 | XV/L -5.25 -4.50 -3.75 -3.60 -2.25 -1.25 -1.25 -1.25 75 25 | - 50 CPV - 0104 - 0081 - 0045 - 0060 - 0059 - 0001 - 0100 - 0277 - 0590 | 2518 X/L .888 .884 .885 .815 .825 .848 .868 | .768 CP 1.1569 .7113 .4252 .1458 9828 .9824 81324 9158 9124 81998 | 13.41 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.75 75 25 25 25 | CPV | 2511 X/L .000 .004 .008 .015 .025 .040 .060 .080 .100 .140 | .407 CP 1.0354 .3556 .0385 -23074227577262146737657858985545 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 75 50 | .50 CPW 0135 0160 0127 0041 0013 0162 0190 0316 0381 |
| | 2588 X/L .000 .004 .008 .015 .025 .040 .060 .100 .110 .228 .228 .230 | .762 CP 1.1543 .7118 .4294 .14458919345241659837922691489877 | XV/L -5.25 -4.56 -3.75 -3.60 -2.25 -1.56 -1.75 -3.60 -7.55 -2.55 -2.55 -2.55 -2.55 -2.55 -2.55 | CPV00560059 -0059 -01040059 -01040059 -01040059011271180521186 | 2589 X/L .008 .008 .015 .025 .048 .068 .148 .148 .229 .268 .308 | .758 CP 1.1547 .7139 .4324 .1439 -8848 -3459 -4546 -8477 -9233 -9869 -9161 -9961 -9861 | XV/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.58 -1.58 -1.75 -3.68 -7.5 -3.68 -7.5 -3.68 -7.5 -5.68 -2.55 -5.68 | - 50 CPW - 0104 - 0061 - 0065 - 0067 - 0059 - 0067 - 0100 - 0577 - 1136 - 1136 - 2147 | 2518 X/L .000 .004 .008 .015 .025 .040 .068 .140 .140 .220 .260 .300 | .768 CP 1.1569 .7113 .4252 .145834714624915891249192912499652 | XV/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.50 -1.26755625502550 | - 56 CPW - 6118 - 664 - 665 - 665 - 665 - 665 - 665 - 1136 - 1186 - 1186 - 1186 | 2511 X/L .000 .004 .008 .015 .025 .040 .060 .080 .140 | .407 CP 1.0354 .3556 .0385 -2307 -4227 -5772 -6214 -6737 -6578 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -75 -50 | CPW - 0135 - 0169 - 0127 - 0041 - 0013 - 0162 - 0190 - 0316 - 0381 - 0658 - 06827 |
| | 2588 X/L .000 .004 .005 .015 .025 .040 .060 .100 .100 .120 | .762 CP 1.1543 .7118 .4294 .14458919345241658683983792268819987787738773879391199919 | 18.87 XV/L -5.25 -4.58 -3.78 -3.88 -2.25 -1.58 -1.58 -7.5 -58 -2.5 -2.5 -1.68 -7.5 | -58 CPY 0856 0859 0859 0859 0859 08575 08236 08549 1127 112 | 2589 X/L .000 .004 .008 .015 .025 .040 .068 .100 .100 .100 .100 .220 .300 .340 | .758 CP 1.1547 .7139 .4324 .14398648 .345945468477 .9233966996189618 | 11.77 XV/L -5.25 -4.58 -3.78 -2.25 -1.58 -1.58 -1.59 -7.58 -5.68 -7.51 -7.51 | - 58 CPW - 8184 - 8885 - 8859 - 8879 - 8866 - 8877 - 8598 - 8168 - 8277 - 81596 - 18247 - 1678 - 1679 | 2518 X/L -888 -984 -985 -915 -949 -968 -189 -189 -189 -226 -388 -388 -388 | .768 CP 1.1569 .7113 .4252 .1458 9828 3471 4624 9158 9124 9158 9124 9963 9127 9663 8996 | 13.41 XV/L -5.25 -4.50 -3.75 -3.60 -2.25 -1.50 -7.50 -2.55 -2.55 -2.55 -2.55 -2.55 -3.75 -3. | - 58 CPV - 8118 - 88619 - 8858 - 8118 - 8858 - 9818 - 9863 - 9856 - 9556 - 9556 - 1136 - 1136 - 1652 - 1789 | 2511 X/L .000 .004 .008 .015 .040 .060 .180 .180 .260 .300 .380 | .407 CP 1.0354 .3556 .0385 -2307 -4227 -5772 -6214 -6737 -5578 -5898 -5912 -6814 -46438 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.507550250025002500 | .50 CPW 0135 0169 0127 0041 0013 00162 0190 0316 0381 0658 0688 08827 0840 0840 |
| | 2508 X/L .000 .004 .005 .015 .025 .040 .180 .140 .180 .220 .260 .340 .340 .360 .420 .420 | -762 CP 1-1543 -7119 -4719 -4719 -4719 -4719 -4719 -4719 -4713 -8683 -9837 -9226 -8619 -9148 -9877 -8773 -8898 -9119 -9168 -8666 -8666 | 18.87 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.50 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 | -58 CPV -6856 -6859 -6858 -6858 -6863 -6875 -6236 -6236 -1127 -11865 -1789 -17 | 2589 X/L .000 .004 .005 .015 .025 .0460 .140 .140 .220 .260 .304 | .758 CP 1.1547 .7139 .4324 .1439 .8848 .3459 .4546 -8477 -9233 .9869 .9861 .99661 .8559 .9828 | 11.77 XV/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.50 -1.25 -1.50 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 | - 50 CPW - 0104 - 0901 - 0905 - 0007 - 0000 - 0100 - 0127 - 0590 - 1136 - 1826 - 2147 - 1678 | 2518 X/L .888 .894 .898 .915 .925 .948 .968 .168 .148 .148 .228 .266 .3348 | .768 CP 1.1569 .7113 .4252 .14583471 .452483249158 .91248998912489636652 | 13.41 XV/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.59 -1.25 -1.25 -2.55 -2.55 -2.55 -2.55 -3.68 -3.75 -3. | - 58 CPW - 8118 - 8864 - 8819 - 8888 - 8118 - 8818 - 8818 - 8256 - 1136 - 11862 - 1789 - 1386 - 18959 - 1386 - 8959 - 1386 - 8959 - 1386 - 8959 - 1749 | 2511 X/L .000 .004 .008 .015 .025 .040 .080 .140 .140 .180 .260 .340 .380 .420 .460 | .407 CP 1.0354 .3556 .3556 .2307 -4227 -5214 -6578 -35898 -3545 -5188 -4450 -4450 | 5.40 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.5075502525252525252525 | .50 CPW 0135 0169 0127 0041 0013 00162 0190 0316 0351 0658 0658 0840 0840 0840 0845 0840 |
| | 2586 X/L .008 .004 .008 .015 .025 .040 .140 .110 .186 .220 .266 .340 .368 .420 .420 .458 | -762 CP 1-1543 -7119 -4294 -1445 -8919 -3452 -4165 -9827 -58619 -9148 -9877 -8773 -6892 -919 -9868 -8663 -687 | 18.87 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.50 -2.55 -2.50 -2.51 -3.00 -2.51 -3.00 -3.75 -3.00 | -58 CPV -6856 -6859 -6862 -6858 -6863 -6873 -68741 -6689 -1718 -1789 -1712 -1387 -8979 -1714 -6699 -6523 | 2589 X/L .0000 .0004 .0005 .015 .025 .025 .025 .0300 .1400 .1200 .2200 .3400 .3400 .3400 .3400 .3500 .5500 | .758 CP 1-1547 -7139 -4324 -1439 -8648 -3459 -4546 -8477 -9233 -9969 -9983 -9161 -9961 -8559 -9962 -9113 -9822 -8847 -9113 -9628 -9116 -9664 | 11.77 XW/L -5.25 -4.5e -3.75 -3.0e -2.25 -1.5e -1.5e -2.5 -1.6e -7.75 -3.6e -2.5 -3.75 -3.6e -7.75 - | -58 CPV01840885086508650866087705981136162621471659135699989998 | 2518 X/L .888 .884 .885 .815 .825 .848 .868 .148 .148 .128 .268 .348 .348 .428 .468 .548 | .768 CP 1.1569 .7113 .4252 .1456852834714624812481248124812489989124899891248998912798639128876391288763 | 13.41 XV/L -5.25 -4.50 -3.75 -3.06 -2.25 -1.50 -2.25 -1.60 -2.25 -1.60 -2.25 -1.60 -2.25 -1.50 -2.25 -2.25 -1.50 -2.25 -2. | - 58 CPW - 8118 - 88619 - 8858 - 8118 - 8855 - 8256 - 8256 - 1136 - 11862 - 11789 - 1386 - 8959 - 8959 - 8959 - 8959 - 11366 - 8959 - 8959 | 2511 X/L .000 .004 .008 .015 .025 .040 .080 .140 .120 .260 .340 .340 .340 .340 | . 407 CP 1.0354 .3556 .2307 .4227 -5772 -6214 -6737 -5578 -5545 -5545 -5545 -5545 -5454 -5545 -5454 -5545 -4544 -4625 -4544 -4625 -4444 -4537 -4783 | 5.40 XW/L -5.25 -4.50 -3.75 -1.20 -1.25 -1.00 -2.25 -1.00 -2.25 -1.00 -2.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.25 -1.00 -1.0 | .50 CPW - 0135 - 0169 - 0127 - 0041 - 0075 - 0162 - 0190 - 0316 - 05516 - 0658 - 0658 - 0840 - 08827 - 0895 - 0791 - 0636 - 0636 - 0623 - 0636 - 0636 - 0636 - 0636 - 0636 |
| | 2586 X/L .000 .004 .005 .015 .025 .040 .100 .1100 .1100 .120 .200 .340 .340 .340 .360 .360 .360 .360 .360 .360 .360 .36 | -762 CP 1-1543 -7119 -4294 -1445 -8919 -3452 -4165 -8683 -9837 -9226 -8619 -9148 -9877 -8773 -8598 -919 -9168 -8483 -6297 -6582 | 18.87 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.60 -7.75 -2.50 -2.51 -5.00 1.25 1.75 2.00 2.25 2.50 2.25 2.50 | -58 CPV -0856 -0859 -0862 -0164 -0868 -0863 -0873 -0873 -1127 -1185 -2186 -11712 -1387 -08741 -0683 -08446 -1484 -08486 | 2589 X/L .0000 .00 | .758 CP 1-1547 -7139 -4324 -1439 -8648 -3459 -8648 -3459 -9861 -9961 -9961 -9961 -9962 -9113 -9822 -8547 -75832 -6571 -7664 -8849 | 11.77 XW/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.56 -1.25 -1.60 -7.50 -2.55 -1.60 -2.50 | -58 CPV0184088108850865086508770196113618262147167813560982098213560982098209820982 | 2518 X/L .886 .886 .815 .825 .846 .866 .148 .148 .128 .266 .346 .346 .426 .586 .588 | .768 CP 1.1569 .7113 .4252 .1458 -3471 -4624 -9158 -9124 -9158 -9124 -8998 -9124 -8998 -9124 -8998 -9124 -89863 -9168 -9828 -8652 -8652 -8652 -8652 -8652 -8652 -8652 -8652 -8652 -8652 | 13.41 XV/L -5.25 -4.50 -3.75 -3.06 -2.25 -1.50 -1.50 -1.50 -2.55 -2.50 -2.55 -2.50 -2.55 -3.05 -3.05 -3.05 -1.00 -3.05 -3. | - 58 CPW - 8118 - 88619 - 8858 - 8118 - 8858 - 8118 - 8856 - 8256 - 1136 - 11862 - 1789 - 1136 - 1682 - 1789 - 1386 - 8959 - 1386 - 8959 - 1486 - 8959 - 1586 - 1886 - | 2511 X/L .000 .004 .015 .025 .040 .100 .100 .100 .220 .260 .340 .340 .350 .420 .460 .500 .540 .540 .580 | . 487 CP 1.0354 .3556 .3385 -2307 -4227 -5772 -6737 -6737 -6578 -3814 -4403 -4568 -4440 -4537 -4783 -47836 -4816 | 5.40 X W /L -5.25 -4.50 -3.75 -3.00 -2.25 -1.20 -2.25 -2 | .50 CPW01380160012700410013001620190031603160316065808270840084008550791066360663606636065150651503794 |
| | 2585 X/L -888 -885 -885 -815 -825 -848 -188 -1188 -128 -148 -128 -148 -128 -148 -158 -148 -158 -158 -158 -158 -158 -158 -158 -15 | -762 CP 1-1543 -7119 -4794 -4994 -4994 -4919 -3455 -8683 -9219 -9148 -9148 -919 -918 | 18.67 XW/L -5.25 -4.50 -3.75 -3.60 -2.25 -1.50 -1.25 -1.50 -2.55 -1.60 -2.51 -2.51 -2.51 -2.52 | -58 CPV -0856 -0859 -0869 -0164 -0859 -0164 -0854 -1127 -1186 -1792 -11712 -1387 -0741 -1397 -0741 -0649 -0548 | 2589 X/L | .758 CP 1-1547 -7139 -4324 -1439 -8848 -3459 -4546 -8477 -9233 -9869 -9861 -9961 -9961 -9962 -8559 -9828 -9113 -9824 -6571 -7664 -8849 -6571 -7664 -8849 -3858 -3858 -3858 | 11.77 XW/L -5.25 -4.5e -3.75 -3.6e -2.25 -1.5e -1.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 -5.25 | - 58 CPV 0184 0981 0985 - 0985 - 0985 - 0989 - 097 - 0590 - 1826 - 1826 - 11678 - 11678 - 11678 - 11678 - 11678 - 1678 - 1678 - 1079 - 1 | 2518 X/L .888 .894 .895 .925 .948 .968 .196 .196 .126 .268 .348 .348 .428 .548 .548 .548 .548 .548 .548 | .768 CP 1.1569 .7113 .4252 .1458 -3471 -4624 -8324 -9127 -9127 -9963 -9124 -8998 -9124 -8998 -9124 -8958 -9124 -9127 -9663 -9127 -9663 -97464 -8678 -97464 -8678 -97464 -8689 -7464 -8696 -7464 -8696 -3644 -8678 | 13.41 XV/L -5.25 -4.50 -3.75 -3.02 -1.25 -1.20 -7.50 -2.25 -3.00 -7.50 -3.00 -1.25 -3.00 -1.25 -3.00 -3. | - 58 CPW - 9118 - 98619 - 98619 - 9888 - 9118 - 9888 - 9118 - 9865 - 9256 - 1136 - 11862 - 11789 - 11366 - 1682 - 1789 - 1789 - 1789 - 98623 - 98748 - 9836 | 2511 X/L .000 .004 .015 .025 .040 .106 .107 .220 .260 .340 .340 .420 .460 .560 .580 .620 .700 .800 | . 487 CP 1.0354 .3556 .3385 -2307 .4227 -5772 -6737 -6737 -6738 -3545 -3814 -4438 -4525 -4568 -4440 -4537 -4786 -4186 -4186 | 5.40 X W /L -5.25 -4.50 -3.75 -1.25 -1.25 -1.25 -2.25 -2.25 -2.25 -1.25 -2.25 -3 | .50 CPW013801600127004100130016201900316055808270840084008550791066360653065306530653065306530791079107910793 |
| | 2585 X/L -888 -888 -815 -848 -868 -188 -188 -188 -188 -188 -188 -18 | -762 CP 1-1543 -7119 -4294 -4294 -4294 -4345 -8917 -926 -8683 -927 -8269 -9148 -88773 -8269 -9119 -9866 -6487 -6829 -7524 -5572 -38694 -7524 -6674 -8674 | 18.67 XW/L -5.25 -4.56 -3.75 -3.00 -2.25 -1.50 -1.25 -1.60 -7.75 -5.60 -2.25 -2.55 -2.56 -2.75 -2.56 -2.75 -2.56 -2.75 | - 58 CPV - 0856 - 0859 - 08692 - 0858 - 0859 - 08663 - 08549 - 1127 - 11865 - 12186 - 1712 - 1387 - 1413 - 0869 - 0843 - 0843 - 0843 - 0843 - 0843 - 0846 | 2589 X/L ################################# | .758 CP 1.1547 .7139 .4324 .4324 .4349 .4546 .8477 .9233 .9869 .9161 .8559 .9813 .982 .9113 .982 .8847 .5832 .6847 .76649 .8458 | 11.77 XV/L -5.25 -4.56 -3.75 -3.66 -2.25 -1.25 -1.6675562525252525252525 | - 58 CPV 0184 0885 0865 0869 0879 0189 0189 1136 2147 1659 1356 299 1356 0998 0999 0959 - | 2518 X/L | .768 CP 1-1569 .71133 .4252 .1458 8528 3471 4624 8998 9158 9158 9158 9163 9163 9163 8998 917 9863 8963 99 | 13.41 XV/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.25 -1.0875502525252525252525 | - 58 - 91 18 - 96 64 - 96 19 - 96 59 - 98 59 - 91 19 - 98 55 - 98 63 - 92 56 - 11 36 - 18 63 - 21 56 - 16 62 - 17 89 - 13 96 - 95 59 - 97 49 - 98 59 - 98 5 | 2511 X/L .000 .004 .015 .025 .040 .080 .190 .140 .120 .200 .340 .340 .340 .500 .500 .500 .500 .500 .500 .500 .5 | . 487 CP 1.0354 .3556 .3385 -2307 .4227 -5772 -6214 -6737 -5758 -5898 -5812 -3814 -4438 -4525 -4568 -4440 -4537 -4783 -4786 -416 -4883 -2574 -4883 | 5.40 XW/L -5.25 -4.50 -3.75 -1.25 -1.26 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -3.2 | .50 CPW - 0135 - 0160 - 0127 - 0041 - 0013 - 00162 - 0190 - 0316 - 0381 - 0516 - 0688 - 08827 - 0840 - 0855 - 0791 - 0636 - 0623 - 06137 - 03798 - 03398 - 03398 - 03398 - 03398 - 00399 |
| | 2585 X/L .009 .004 .008 .015 .025 .040 .018 .180 .180 .180 .180 .226 .340 .380 .340 .380 .340 .360 .469 .540 .540 .540 .540 .540 .540 .540 .540 | -762 CP 1-1543 -7119 -4719 -4719 -4719 -4719 -4719 -4719 -4719 -4719 -4719 -7 | 18.87 XV/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.50 -1.25 -1.50 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 | - 58 CPV - 6866 - 6859 - 6868 - 6863 - 6873 - 6873 - 1127 - 11865 - 11782 - 11387 - 11782 - 11782 - 11865 - 11782 - 11865 - 11782 - 11865 - 1 | 2589 X/L -888 -888 -8155 -848 -8155 -848 -148 -1228 -388 -388 -388 -388 -388 -388 -388 - | .758 CP 1.1547 .7139 .4324 .1439 .98648 .3459 .4546 .8477 .9263 .9969 .9161 .8559 .9968 .9161 .8559 .9163 .9657 .7664 .8649 .5458 .9666 .8649 .5458 .9666 .86849 .5458 .96666 .8683 .9683 .96861 .8683 | 11.77 XV/L -5.25 -4.56 -3.75 -3.66 -2.25 -1.25 -1.8675562525252525252525 | -59 CPV010400810085008500850085008501080279113602791136027911350598113504420485044208650445089508970816 | 2518 X/L .888 .884 .884 .885 .884 .885 .885 .885 | .768 CP 1-1569 .71132 .4252 .1458 -3471 -4624 -8324 -8324 -89159 -9127 -9963 -8652 -9128 -9127 -9663 -9669 -9828 -9127 -9663 -9128 -9773 -5674 -6268 -74678 -8418 -8841 -1188 | 13.41 XV/L -5.25 -4.50 -3.75 -3.06 -1.50 -1.25 -2.25 -2.25 -2.25 -2.25 -3.75 1.50 | - 58 CPW - 8118 - 88619 - 8858 - 8118 - 8858 - 8118 - 8855 - 8185 - 8185 - 1136 - 1136 - 11462 - 11789 - 1386 - 8959 - 8049 - 8049 - 8049 - 8049 - 8049 - 80897 - 81869 | 2511 X/L .000 .004 .015 .025 .040 .080 .100 .220 .230 .340 .340 .340 .560 .500 .500 .500 .500 .500 .500 .50 | . 487 CP 1.0354 .3556 .2307 .4227 -5772 -6214 -6737 -5578 -5598 -5012 -3614 -4638 -4626 -4440 -4537 -4786 -4883 -4786 -4983 -2574 -4883 -2574 -6628 | 5.40 X W /L -5.25 -4.57 -3.06 -2.25 -1.20 -1.25 -5.20 -2.25 -1.20 -2.25 -1.20 -2.25 -2.25 -2.25 -2.25 -2.25 -3.52 -3.75 -3.40 -3.75 -3.40 | .50 CPW0135016901270041001300162019003160351065808400840085507910636062306100636062306100636062306100636 |
| | 2586 X/L .000 .004 .004 .005 .015 .040 .016 .016 .016 .016 .016 .016 .016 .01 | -762 CP 1-1543 -7119 -4794 -1445 -8919 -3452 -4165 -8683 -9837 -9226 -86819 -9148 -9877 -8773 -8898 -919 -9868 -6892 -7524 -6822 -7524 -63374 -68374 -68374 -68374 -68376 -83376 | 18.87 XV/L -5.25 -4.58 -3.75 -3.08 -2.25 -1.59 -1.59 -1.59 -2.55 | - 58 CPV - 6866 - 6859 - 6868 - 6879 - 6863 - 68736 - 6874 - 1186 - 1178 - 1387 - 6874 - 6863 - 6874 - 6864 - 6868 - 6863 - 6874 - 6868 - 6864 - 6864 - 6864 - 6869 - 68338 | 2589 X/L .0000 | .758 CP 1.1547 .7139 .4324 .1439 .98648 .3459 .4546 .8477 .9263 .9963 .9161 .8559 .9913 .9629 .8647 .9638 .9161 .8559 .9113 .9629 .8649 .9113 .9629 .8649 .9113 .9629 .9686 .9686 .9686 .9686 .9686 .9686 .9686 .9686 .9686 | 11.77 XW/L -5.25 -4.56 -3.75 -3.66 -2.25 -1.56 -2.25 -1.66 -2.56 | -58 CPV01840981098509850966097705961356182621471679135699870592148504850485048504850485048504850485 | 2518 X/L .886 .886 .886 .815 .826 .888 .188 .188 .228 .268 .348 .348 .348 .588 .588 .588 .588 .588 .588 .588 .5 | .768 CP 1.1569 .7113 .4252 .1458 -3471 -4624 -8928 -31471 -4624 -8998 -9124 -8998 -9124 -8998 -9124 -8998 -9124 -8998 -9124 -8998 -9128 -8652 -8652 -8662 -9128 -8673 -918 -9288 -8734 -18678 -8488 -18678 -18678 -18678 -18678 | 13.41 XV/L -5.25 -4.50 -3.75 -3.06 -2.25 -1.50 -7.50 -2.55 -2.50 -7.50 -2.55 -2.50 -7.50 -2.55 -2.50 -7.50 -2.55 -3.50 | - 58 CPW - 9118 - 98619 - 9869 - 9118 - 9868 - 9118 - 9865 - 9156 - 1136 - 11862 - 11862 - 11789 - 1386 - 9749 - 9652 - 9749 - 9652 - 9749 - 9652 - 9749 - 9652 - 9749 - 9652 - 9749 - 9652 - 9749 - 9652 - 9749 - | 2511 X/L .000 .004 .015 .029 .080 .140 .220 .260 .340 .340 .340 .500 .540 .550 .620 .755 .500 .600 .975 .751 .000 .000 .000 | . 407 CP 1. 0354 3556 6.0385 - 2.307 - 4227 - 5772 - 6214 - 6737 - 5578 - 5818 - 4528 - 4518 - 4528 - 4518 - 4528 - 4518 - 4528 - 4518 - 4528 - 4518 | 5.40 X W /L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -2.50 -2.50 -2.50 -2.50 -2.50 -2.50 -3.75 -3.00 -3.75 -3.7 | - 50 CPW - 0135 - 0160 - 0127 - 0041 - 0013 - 0070 - 0162 - 0190 - 0316 - 0653 - 0658 - 08827 - 08840 - 08855 - 0791 - 0663 - 0663 - 0610 - 0639 - 0610 - 0639 - 0610 - 0639 - 0610 - 0639 - 0610 - 0639 - 0610 - 0639 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 - 0610 |
| | 2586 X/L .888 .886 .885 .925 .946 .868 .148 .148 .228 .268 .348 .348 .348 .548 .548 .548 .548 .548 .548 .548 .5 | -762 CP 1-1543 -7119 -4294 -4294 -4345 -8919 -3452 -4165 -8683 -9837 -9226 -5819 -9148 -9877 -8898 -9119 -9866 -8483 -6297 -6882 -7524 -33644 -5572 -3684 -3113 -3761 -8376 | 18.87 XW/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.58 -1.59 -1.25 -1.68 -2.59 | - 58 CPV - 0856 - 0859 - 0862 - 0863 - 0863 - 0876 - 1127 - 1185 - 1127 - 1185 - 1127 - 1387 - 08741 - 0683 - 08447 - 0413 - 0864 - 08 | 2589 X/L | .758 CP 1-1547 -7139 -4324 -1439 -8648 -3459 -4546 -6477 -9233 -9869 -9161 -9961 -9961 -9961 -9961 -9962 -6559 -9824 -6571 -7664 -8849 -5458 -3666 -8484 -8831 -1151 -1547 -2618 -9499 -8248 -8494 -84 | 11.77 XW/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.58 -1.25 -1.25 -5.25 -1.58 -2.59 -7.5 -2.60 -2.5 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -2.5 -3.7 -3.60 -3.7 -3.7 -3.60 -3.7 -3.7 -3.60 -3.7 -3.7 -3.60 -3.7 -3.7 -3.60 -3.7 -3.7 -3.60 -3.7 -3.7 -3.60 -3.7 -3.7 -3.7 -3.7 -3.7 -3.7 -3.7 -3.7 | -58 CPV018409810985098509860970059013561826214716781356998110881098 | 2518 X/L .886 .886 .886 .815 .826 .826 .186 .186 .186 .186 .186 .186 .186 .18 | .768 CP 1.1569 .7113 .4252 .1458 -3471 -8324 -81 | 13.41 XV/L -5.25 -4.50 -3.75 -3.06 -2.25 -1.50 -1.25 -2.25 | - 58 CPW - 9118 - 98619 - 98619 - 9868 - 9118 - 9868 - 9118 - 98663 - 9256 - 9556 - 1136 - 11862 - 11789 - 11366 - 1652 - 1789 - 1396 - 9492 - 9836 | 2511 X/L .000 .004 .015 .025 .040 .100 .100 .120 .200 .140 .120 .260 .340 .340 .340 .340 .500 .580 .620 .700 .800 .975 .1000 .990 .990 .990 .990 .990 .990 .99 | . 487 CP 1.0354 .3556 .2307 .4227 -5772 -6737 -6737 -6578 -3814 -4635 -4440 -4537 -4786 -4816 - | 5.40 X W /L -5.25 -4.50 -3.75 -3.00 -2.25 -1.20 -2.25 | .50 CPW - 0138 - 0169 - 0127 - 0041 - 0013 - 00162 - 0190 - 0316 - 0316 - 0658 - 0827 - 0840 - 0855 - 0791 - 06623 - 06162 - 0791 - 06162 - 0791 - 06162 - 0791 - 06162 - 0791 |
| | 2585 X/L .888 .885 .885 .825 .846 .858 .188 .148 .148 .148 .148 .158 .228 .388 .388 .388 .428 .588 .588 .628 .788 .628 .788 .628 .788 .788 .788 .788 .788 .788 .788 .7 | -762 CP 1-1543 -7119 -4794 -4891 -3452 -8919 -3452 -8683 -9148 -9148 -9148 -9119 -9166 -8819 -9186 -8622 -7524 -6622 -75572 -6682 -75572 -6826 -7527 -6826 -7527 - | 18.87 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.58 -1.59 -1.25 -1.68 -2.59 -2.25 -2.59 -3.75 -3.88 -2.25 -4.58 -3.75 -3.88 -2.25 -4.58 -3.75 -3.88 -2.25 -4.58 -3.75 -3.88 -2.25 -4.58 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 -3.75 -3.88 | - 58 CPV - 0856 - 08592 - 08663 - 08596 - 08549 - 1127 - 1186 - 17397 - 1187 - 1187 - 1197 - 1197 - 08741 - 1197 - 08741 - 1198 - 119 | 2589 X.L | .758 CP 1.1547 .7139 .4324 .4329 .8848 .3459 .4546 .8477 .9233 .966 .8559 .9816 .9961 .9961 .9961 .9963 .9161 .9961 .96848 .9113 .96849 .9161 .96848 .9113 .96849 .9183 | 11.77 XV/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.56 -1.25 -1.66 -2.56 -2.56 -2.56 -3.75 -3.66 -3.75 -3.75 -3.66 -3.75 | - 59 CPV01840981098509660979085911361859113562147167913562147167910998077105900485 - | 2518 X/L .888 .894 .895 .925 .948 .895 .148 .168 .168 .168 .168 .168 .168 .168 .16 | .768 CP 1-1569 -7113 -4252 -145888283471 -4624 -832481589158912796528963911899289118992887638652865286529652 | 13.41 XV/L -5.25 -4.56 -3.75 -3.66 -2.25 -1.25 -1.66 -2.56 -2.56 -2.56 -2.56 -3.75 -3.66 -3.75 -3.75 -3.66 -3.75 | - 58 CPW - 9118 - 9619 - 9619 - 96838 - 9110 - 96838 - 9116 - 9556 - 1136 - 1863 - 2156 - 1136 - 1682 - 1789 - 1386 - 1959 - 9749 - 9623 - 9638 - 9456 - 9936 - 99 | 2511 X/L .000 .004 .015 .025 .040 .060 .140 .120 .200 .340 .340 .340 .500 .500 .500 .500 .500 .500 .500 .5 | . 487 CP 1.0354 .3556 .3385 -2307 .4227 -5772 -6214 -6737 -5578 -5518 -5898 -5812 -4814 -4438 -4525 -4814 -4486 -4517 -4786 -4186 -4186 -4186 -4186 -4186 | 5.40 X W /L -5.25 -4.50 -3.05 -1.25 -1.26 -2.25 -1.26 -2.25 -2.2 | .50 CPW - 0135 - 0169 - 0127 - 0041 - 0013 - 00162 - 0190 - 0316 - 0558 - 0827 - 0840 - 0855 - 0791 - 0623 - 06162 - 0617 - 0636 - 0617 - 0840 - 0855 - 0791 - 0636 - 0617 - 0840 - 0855 - 0791 - 0636 - 0617 - 0840 - 0855 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0791 - 0856 - 0867 - 0856 - 0867 - 0867 - 0867 - 0868 - 0867 - 0868 - 08 |
| | 2585 X/L -888 -885 -885 -825 -848 -858 -188 -148 -128 -228 -238 -348 -388 -429 -388 -429 -588 -628 -788 -628 -788 -628 -788 -628 -788 -788 -788 -788 -788 -788 -788 -7 | -762 CP 1-1543 -7119 -4794 -4994 -4994 -4919 -3452 -8683 -9219 -9148 -8673 -8286 -8619 -9149 -9149 -9149 -9149 -9156 -8689 -1113 -1572 -6682 -7524 -6682 -7524 -6682 -7524 -6682 -7524 -6682 -7524 -6889 -1113 -1286 -8483 -8674 -8689 -1113 -1286 -8483 -8674 -8689 -1113 -1286 -1287 -3128 -84852 -2873 -3128 -34852 -4852 | 18.87 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.58 -1.58 -1.59 -1.59 -2.55 -2.55 -2.55 -2.55 -3.75 -3.88 -2.25 -3.75 -3.88 | - 58 CPV - 0856 - 08592 - 08663 - 08596 - 08549 - 11027 - 1286 - 17127 - 13877 - 17127 - 13877 - 14137 - 14137 - 14137 - 14143 - 14137 - 14143 - 141 | 2589 X/L ### ### ### ### ### ### ### ### ### # | .758 CP 1.1547 .7139 .1439 .3459 .4546 .8477 .9233 .9669 .9161 .8559 .9638 .9161 .8559 .9638 .9161 .8559 .9638 .9161 .8559 .9638 .9161 .8559 .9686 .9113 .96847 .5832 .6666 .6841 .1151 | 11.77 XV/L -5.25 -4.56 -3.75 -3.86 -2.25 -1.65 -1.56 -1.56 -2.56 -2.56 -2.56 -3.75 -3.86 -2.25 -4.56 -3.75 -3.96 -2.25 -4.56 -3.75 -3.96 -2.25 -4.56 -3.75 -3.96 -2.25 -4.56 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 -3.75 -3.96 | - 58 CPW 0184 0885 - 0866 - 0879 - 0869 - 0859 - 1136 - 12147 - 1659 - 1365 - 1896 - | 2518 X/L | .768 CP 1-1569 -71132 -1452 -1452 -1452 -1452 -1452 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -1963 -1912 -19678 | 13.41 XV/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.25 -1.26 -2.56 -2.56 -2.57 -3.68 -2.25 -1.25 -3.76 -3.75 | - 58 - 918 - 9619 - 9619 - 9619 - 96839 - 9119 - 96839 - 9119 - 96556 - 11366 - 1652 - 1789 - 1396 - 1652 - 1789 - 1396 - 1863 - 9536 - 1863 - 9539 - 9649 - | 2511 X/L .000 .004 .015 .025 .040 .080 .195 .080 .140 .180 .220 .340 .340 .340 .540 .590 .580 .680 .700 .680 .975 .1000 .975 .1000 .984 .984 .984 .984 .985 .985 .985 .985 .985 .985 .985 .985 | . 487 CP 1.0354 .3556 .2307 .4227 -5772 -6214 -6737 -5578 -5898 -5812 -3612 -4814 -4438 -4526 -4418 -4438 -4786 -4818 - | 5.40 X W / L -5.25 -4.50 -3.75 -3.06 -2.25 -1.20 -2.25 -3.06 -2.50 -3.75 -3.08 -3.75 -4.09 -3.75 -4.09 -3.75 -4.09 -3.75 -3.09 -3. | .50 CPW - 0138 - 0169 - 0127 - 00013 - 00162 - 0190 - 0316 - 03516 - 0658 - 06823 - 0695 - 0791 - 0840 - 0855 - 0791 - 0840 - 0855 - 0791 - 0840 - 0855 - 0791 - 0840 - 0855 - 0791 - 0840 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0791 - 0855 - 0851 - |
| | 2585 X/L -888 -888 -815 -825 -848 -188 -1188 -188 -188 -188 -188 -18 | -762 CP 1-1543 -7119 -4194 -4194 -4194 -3452 -8919 -9148 -8683 -9266 -8683 -9219 -9148 -8689 -919 -91866 -8483 -6297 -66822 -7524 -8689 -1113 -15761 -9376 -9889 -1113 -15761 -9376 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1113 -15761 -9889 -1889 -1889 -1889 -1889 -1889 -1889 | 18.67 XW/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.56 -1.25 -1.6675562525252525252525 | - 58 CPV - 0856 - 08592 - 08663 - 08596 - 08549 - 11127 - 12186 - 17127 - 12186 - 17127 - 1317 - 1417 - 1 | 2589 X | .758 CP 1.1547 .71324 .1439 .98848 .3459 .4546 .8477 .9233 .9869 .9161 .8559 .98847 .58832 .68847 .58832 .68847 .58832 .68848 .88831 .1151 | 11.77 XV/L -5.25 -4.56 -3.75 -3.86 -1.25 -1.86 -2.25 -5.86 -2.25 -5.86 -2.25 -5.86 -3.75 -3.86 -2.25 -4.56 -3.75 -3.86 -2.25 -4.56 -3.75 -3.86 -2.25 -4.56 -3.75 -3.86 -2.25 -3.75 -3.86 -3.86 | - 58 CPV0184088508690895086901891136214716591356214716591659165910562147165910562147165910591059105910590751086909710869098109120931604850442049504850442049504850442049504850442049504950495049504950495049504950496 | 2518 X/L | .768 CP 1-1569 -71132 -4252 -48528 -3471 -4624 -8324 -89158 -9127 -9863 -89652 -9127 -9863 -87652 -9128 -9128 -9128 -9128 -9128 -9128 -9128 -9128 -9128 -9128 -9128 -9128 -17464 -4652 -4724 -4658 -15494 -46678 -41188 -1188 | 13.41 XV/L -5.25 -4.58 -3.75 -3.68 -2.25 -1.26 -2.25 -1.26 -2.50 -2.25 | - 58 CPW - 9118 - 9644 - 9619 - 9658 - 9865 - 9856 - 98556 - 1136 - 1136 - 1682 - 1789 - 1396 - 9856 - 1863 - 1863 - 1863 - 1863 - 1863 - 1869 - 186 | 2511 X/L | . 467 CP 1.0354 -3356 -2307 -4227 -5772 -5772 -578 -5898 -5912 -4814 -4538 -4528 -4458 -4528 -4186 -4537 -4786 -4518 -4528 -4186 -4518 -4528 -4186 -4518 -4528 -4186 -4518 -4528 -45 | 5.40 X ¥ /L -5.25 -4.50 -3.02 -1.25 -1.26 -2.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.2 | - 50 CPW - 0136 - 0160 - 0127 - 00013 - 00070 - 0162 - 0190 - 0316 - 06516 - 06516 - 06827 - 08840 - 0855 - 0779 - 0636 - 0610 - 0316 - 0610 - 0316 - 0610 - 0316 - 0610 - 0316 - 0610 - 0316 - 0610 - 0316 - 0610 - 0316 - 0316 - 0316 - 0316 - 0316 - 0316 - 0316 - 0316 - 0317 - 0318 - 0318 - 0317 - 0318 |
| | 2586 X/L .888 .884 .888 .818 .825 .848 .868 .168 .168 .168 .148 .168 .148 .168 .148 .168 .168 .168 .168 .168 .168 .168 .16 | -762 CP 1-1543 -7119 -71 | 18.67 XW/L -5.25 -4.56 -3.75 -3.00 -2.25 -1.56 -1.25 -1.6675562525252525252525 | - 58 CPV - 0856 - 0859 - 0868 - 08184 - 08663 - 0879 - 1127 - 1286 - 1127 - 1286 - 1712 - 1387 - 1486 - 0849 - 1486 - 08413 - 0866 - 08413 - 0866 - 0843 - 0866 - 0843 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0847 - 0866 - 0848 - 0866 - 0848 - 0866 - 0848 - 0866 - 0848 - 0866 - 0848 - 0866 - 0848 - 0866 - 0848 - 0866 - 0848 - 0866 - 0888 | 2589 X/L ### ### ### ### ### ### ### ### ### # | .758 CP 1.1547 .71324 .14329 .98648 .3459 .4546 .8477 .9233 .9869 .9161 .85559 .9161 .85559 .9183 .98647 .58547 .58647 .58649 .58647 .58649 .586466 .868666 .86868 .868666 .868831 .1151 | 11.77 XV/L -5.25 -4.56 -3.75 -3.86 -1.25 -1.86 -2.25 -5.86 -2.25 -5.86 -2.25 -3.75 -3.86 -2.25 -4.56 -3.75 -3.86 -1.25 -1.25 -1.26 -2.25 -3.75 -3.86 -2.25 -3.75 -3.86 -2.25 -3.75 -3.86 | - 58 CPV0184088508660879086701860170598113621471659113621471659105910591059105910591059105910591059105910591059105910591059087108650848508485084850848508486089610861 | 2518 X/L | .768 CP 1-1569 .71133 .4252 .1458 .48628 -3471 -4624 -8324 -8324 -89159 -9127 -9863 -8963 -9127 -9863 -8763 -9164 -88969 -9424 -889678 -88968 -14626 | 13.41 XV /L -5.25 -4.58 -3.75 -3.68 -2.25 -1.25 -1.26 -2.56 -2.56 -2.56 -3.75 -3.68 -2.56 -3.75 -4.58 -3.75 -3.68 -2.55 -1.25 | - 58 CP W - 9118 - 9664 - 9619 - 9658 - 9865 - 98556 - 98556 - 1136 - 1662 - 1136 - 1662 - 1682 - 1682 - 16959 - 9749 - 9356 - 9856 - 9856 - 1863 - 9856 - 1863 - | 2511 X/L | . 407 CP 1.0354 -3556 -3385 -2307 -4227 -5772 -5772 -5578 -5898 -4528 -4618 -4528 -4440 -4537 -4783 -4 | 5.40 X ¥ /L -5.25 -4.55 -3.025 -1.25 -1.26 -2.25 -1.26 -2.25 -2.25 -1.26 -2.25 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 | - 90 CPW - 91 36 - 91 69 - 91 27 - 96 13 - 96 16 - 96 17 - 96 |
| | 2585 X/L -888 -888 -818 -828 -868 -188 -188 -188 -188 -188 -188 -18 | -762 CP 1-1543 -7119 -4794 -4991 -3452 -4165 -8683 -9837 -9226 -5819 -9148 -917 -8886 -919 -9168 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -8483 -9119 -9868 -1113 | 18.87 XW/L -5.25 -4.58 -3.75 -3.88 -2.25 -1.58 -1.25 -1.58 -2.59 | - 58 CPV - 0886 - 0859 - 0164 - 0859 - 0164 - 0858 - 0898 - 1127 - 1885 - 1127 - 1885 - 1712 - 1387 - 0441 - 0464 - 0844 - 0864 - 0844 - 0864 - 0844 - 0864 - 0845 | 2 5 8 9 X | .758 CP 1.1547 .7139 .8149 .3459 .4546 .8477 .9233 .9869 .9161 .99659 .9859 | 11.77 XV/L -5.25 -4.56 -3.75 -2.25 -1.86 -1.25 -2.85 -5.86 -2.25 -2.86 -2.25 -3.75 -3.86 -2.25 -3.75 -3.86 -2.25 -4.56 -3.75 -3.86 -2.25 -3.75 -3.86 -2.25 -1.86 -2.25 -3.75 -3.86 -3.75 | - 58 CPV0184088508660879088901800274059811362147059811362147145911362147145911361 | 2518 X/L | .768 CP 1-1569 -7113 -4252 -14588828 -3471 -4624 -8324 -8158 -9124 -89127 -98632 -9124 -89138 -9118 -9928 -8773 -5874 -6266 -7464 -3844 -3844 -1188 -11569 -2859 -241 -9922 -221 -997 -2848 -39649 -39688 | 13.41 XV /L -5.25 -4.56 -3.75 -3.025 -1.25 -1.26 -2.25 -2. | - 58 CP W - 9118 - 9664 - 9619 - 9688 - 9119 - 9688 - 9118 - 9663 - 1863 - 1863 - 1136 - 11863 - 1136 - 1682 - 1789 - 1396 - 18959 - 9749 - 9846 - 9856 - 9856 - 9856 - 1869 - 9856 - 1869 - 9856 - 9866 - 9856 - | 2511 X/L .000 .004 .008 .015 .025 .040 .080 .140 .120 .220 .230 .340 .340 .340 .540 .540 .540 .540 .540 .540 .540 .5 | . 407 CP 1.0354 .3556 .2307 .4227 -5772 -6214 -6737 -5578 -5595 -5168 -5012 -35168 -4027 -4783 -4786 -4483 -4786 -4983 -4786 -4983 -14786 -4983 -14786 -4983 -14786 -4983 -14786 -4983 -14786 -4983 -14786 -4983 -14786 -4983 -1486 -4983 -1486 -4983 -1486 -4983 -1486 -4983 -1486 | 5.40 X ¥ /L -5.25 -4.50 -3.75 -1.25 -1.26 -2.5 | - 90 CPW - 91 36 - 91 69 - 91 78 - 91 |
| | 2585 X/L -888 -888 -818 -828 -868 -188 -188 -188 -188 -188 -188 -18 | -762 CP 1-1543 -7119 -71 | 18.87 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.50 -2.5 -2.50 -7.51 -2.00 -2.55 -3.75 -3.00 -2.55 -3.75 -3.00 -2.55 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 -2.25 -4.50 -3.75 -3.00 | - 58 CPV - 0856 - 0859 - 08692 - 08663 - 0879 - 11827 - 1286 - 11827 - 1286 - 11827 - 1286 - 0849 - 11927 - 1387 - 1486 - 08413 - 0868 - 08413 - 0868 - 08413 - 0868 - 0843 - 08486 - 0843 - 08486 - 0847 - 08486 - | 2589 X/L ### ### ### ### ### ### ### ### ### # | .758 CP 1.1547 .71324 .14329 .98648 .3459 .4546 .8477 .9233 .9869 .9161 .85559 .9161 .85559 .9183 .98647 .58547 .58647 .58649 .58647 .58649 .586466 .868666 .86868 .868666 .868831 .1151 | 11.77 XV/L -5.25 -4.56 -3.75 -3.06 -2.25 -1.06 -2.25 -1.06 -2.50 -2.50 -2.50 -3.75 -3.06 -3.06 -3.75 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 -3.06 | - 58 CPV 0184098109850966087908990189017911361826214716781356214716781356097807710685094209850948098509480985094809850986 | 2518 X/L | .768 CP 1-1569 .71133 .4252 .1458 .48628 -3471 -4624 -8324 -8324 -89159 -9127 -9863 -8963 -9127 -9863 -8763 -9164 -88969 -9424 -889678 -88968 -14626 | 13.41 XV /L -5.25 -4.56 -3.75 -3.62 -1.25 -1.26 -2.5 | - 58 CPW - 8118 - 8619 - 8619 - 8638 - 8118 - 8663 - 8156 - 1136 - 11662 - 1136 - 11662 - 1769 - 1386 - 1863 - 18 | 2511 X/L | . 407 CP 1.0354 -3556 -3385 -2307 -4227 -5772 -5772 -5578 -5898 -4528 -4618 -4528 -4440 -4537 -4783 -4 | 5.40 X W / L -5.25 -4.57 -3.06 -3.75 -1.26 -1.26 -2.56 -1.26 -2.56 -1.26 -2.56 -2.25 -1.26 -2.56 -3.75 -3.46 -3.75 -3. | - 90 CPW - 0136 - 0160 - 0127 - 00413 - 00162 - 0190 - 0316 - 03516 - 0658 - 08827 - 0 |

Table 3.4 Continued

| NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6+RE | ALPHA | NR. | MACH | E- 6+RE | AL PHA |
|--|--|--|---|--|--|--|---|--|---|--|---|---|--|--|--|
| 2512 | . 499 | 5.76 | . 50 | 2514 | . 682 | 5.86 | . 50 | 2515 | . 650 | 5.80 | - 50 | 8516 | . 702 | 5.88 | - 50 |
| X/L | CP | XWA | CPW | xa | CP | XVA | CPV | xn | CP | XWA | CPW | X/L | CP | XV/L | CPW |
| .000 .004 .008 | 1.0631 .4647 .6889 | -5.25 -4.50 -3.75 | 0106 0093 0053 | - 994 - 998 | 1.0882 .4895 .1615 | -5.25 -4.50 -3.75 | 0058 0024 0028 | .000 | 1.1056 | -5.25 -4.50 | 0075 | .000 .004 .008 | 1.1260 .6074 .2984 | -5.25 -4.50 | 0089 0039 0035 |
| .015 | 1958 | -3.00 | 0048 | ·015 | 1301 | -3.00 -2.25 | 0001 | .008 .015 | .2136 0837 3334 | -3.75 -3.00 -2.25 | 0028 0007 0003 | .015 | .0019 2499 | -3.75 -3.00 -2.25 | 0005 |
| .040 .060 .080 | 5878 6494 7145 | -1.50 -1.25 -1.00 | 0662 0151 0152 | - 646 - 666 - 686 | 5927 6840 7742 | -1.50 -1.25 -1.00 | 0028 0026 | -040 | 5743 | -1.50 | 0018 | .040 .060 .080 | 5101 6554 -1.0154 | -1.50 -1.25 -1.00 | .0001 .0024 0069 |
| -100 | 6951 | 75 | 0265 | -199 | 7630 | 75 | 0195 | - 080 - 100 - 140 | 8393 8133 7278 | -1.00 75 50 | 0071 0200 0333 | · 100 | 8174 7903 | 75 50 | 0142 |
| -180 -220 -260 | 5881 5601 5324 | 25 .00 | 0502 0709 0866 | ·180 ·220 ·260 | 6461 6152 5877 | 25 .00 .25 | 0488 0784 0982 | .180 .220 | 6914 6608 6342 | - · 25 · 00 · 25 | 0526 0873 1147 | .180 .220 .260 | 7567 7292 6900 | - · 25 · 00 | 0563 0929 1361 |
| .340 | 5157 4936 4869 | .50 .75 1.00 | 0954 0946 0966 | · 300 · 340 · 380 | 5687 5441 5350 | .50 .75 | 1111 1044 1006 | · 300 | 6109 | •50 •75 | ~.1286 ~.1171 | ·300 | 6634 | •50 •75 | 1536 1286 1314 |
| . 380 . 420 . 460 | - 4808 | 1.25 | 0840 | · 420 | 5263 | 1.25 | 0892 | · 386 · 426 · 460 | 5733 5667 5637 | 1.00 | 1169 1000 0795 | .38Ø .42Ø .46Ø | 6214 6138 6119 | 1.00 | 1097 |
| . 500 . 540 . 580 | 4810 4983 4977 | 1.75 2.00 2.25 | 0626 0544 0457 | • 500 • 540 • 580 | 5261 5428 5406 | 1.75 2.00 2.25 | 0629 0565 0516 | • 500 • 540 | 5617 5800 | 1.75 | 0711 0625 | • 500 • 540 • 580 | 6123 6361 6367 | 1.75 2.00 2.25 | 0667 0614 0530 |
| - 620 - 700 | 4798 | 2.50 | 0485 | · 620 | 5205 | 2.50 | Ø 468 Ø 385 | • 580 • 620 • 700 | 5789 5571 4986 | 2.25 2.50 2.75 | 0532 0490 0432 | · 620 · 700 | 6121 | 2.50 | 0483 0438 |
| .800 .900 .950 | 2764 0900 .0126 | 3.50 -5.25 -4.50 | 0264 0045 0045 | -800 -900 -950 | 3018 0907 0197 | 3.50 -5.25 -4.50 | 0298 -0046 0006 | .800 .900 | 3071 0898 -0186 | 3.50 -5.25 -4.50 | 0350 0004 0019 | .800 .900 .950 | 3115 0829 .0238 | 3.50 -5.25 -4.50 | 0370 0020 0023 |
| .975 | .0565 | -3.75 -3.00 | 0000 | .975 | .0623 -1034 | -3.75 -3.00 | .0066 | .975 1.000 | .0629 | -3.75 -3.00 | .0075 | .975 1.000 | .0646 | -3.75 -3.00 | .0021 .0038 |
| .000 .004 .008 | 1.0631 .3448 .1269 | -2.25 -1.50 -1.25 | .0063 .0176 .0171 | .000 .004 .008 | 1.0882 .3457 .1167 | -2.25 -1.50 -1.25 | .0167 .0237 .0277 | -000 -004 -008 | 1.1056 .3366 .1041 | -2.25 -1.50 -1.25 | .0150 .0224 .0257 | .000 .004 .008 | 1.1260 .3166 .0862 | -2.25 -1.50 -1.25 | .0137 .0240 .0279 |
| .020 | .0372 | -1.00 | .0284 | ·020 | .0236 | -1.00 | .0319 .0324 | ·020 | .0147 .0348 | -1.00 | .0318 | .020 | 0020 -0280 | -1.00 | .0311 .0361 |
| · 150 · 200 | 0528 1370 2060 | 50 25 | .0280 .0332 .0341 | -100 -150 -200 | 0669 1535 2336 | 50 25 | .0373 .0409 .0416 | -100 -150 -200 | 0758 1670 2502 | 50 25 | .0382 .0414 .0398 | -100 -150 -200 | 0880 1815 2741 | - · 50 - · 25 · 00 | .0390 .0415 .0430 |
| .250 .350 .450 | 2587 2618 1806 | .25 .50 | .0350 .0388 .0352 | -250 -350 -450 | 2872 2871 2052 | .25 .50 .75 | .0441 .0463 .0418 | ·250 | 3161 | ·25 | .9418 .0395 | ·250 | 3445 | ·25 | .0378 .0386 .0412 |
| - 550 - 650 | 0762 | 1.00 | .0395 .0338 | -550 -650 | 0781 0669 | 1.00 | .0445 | • 450 • 550 • 650 | 2166 0821 -0711 | 1.00 | .0415 .0411 .0402 | • 450 • 550 • 650 | 2334 0834 -0707 | 1.00 1.25 | .0397 .0385 |
| .750 .850 1.000 | .2002 .2668 .0965 | 1.75 | .0289 .0208 .0158 | .750 .850 1.000 | .2099 .2962 .1034 | 1.75 | .0337 .0269 .0177 | • 750 • 850 | .2154 .3027 | 1.50 | .0348 .0237 | .750 .850 1.000 | .2204 .3124 .0970 | 1.75 | .0321 .0274 .0176 |
| | | 2.25 | 0106 | | | 2.25 | 0058 0024 | 1.000 | .0994 | 2.00 2.25 2.50 | .0177 0075 0060 | 1.000 | ,,,, | 2.25 | 0089 0039 |
| | | 2.75 | 0053 0008 | | | 2.75 3.50 | 0001 | | | 2.75 | 0028 | | | 2.75 3.50 | 0035 0005 |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E-6+RE | ALPHA | NR. | MACH | E- 6+RE | ALPHA | NR. | MACH | E- 6*RE | AL PHA |
| 2517 | -717 | 5.81 | - 50 | 2518 | • 739 | 5.87 | - 50 | 2519 | • 751 | 5.96 | - 50 | NR• 2520 | MACH •759 | E-6*RE 5.97 | • 50 |
| 2517 X/L | -717 CP | 5.81 XW/L | .50 CPV | | •739 CP | 5.87 XV/L | | 2519 X/L | • 751 CP | 5.96 XV/L | -50 CPW | 2520 X/L | .759 CP | 5.97 XV/L | •50 CPW |
| 2517 X/L .000 .004 .008 | .717 CP 1.1355 .6263 .3268 | 5.81 XV/L -5.25 -4.50 -3.75 | .50 CPV 0052 0020 | 2518 X/L .000 .004 .008 | .739 CP 1.1398 .6587 .3681 | 5.87 XV/L -5.25 -4.50 -3.75 | .50 CPW .8096 8049 8083 | 2519 X/L .000 .004 | .751 CP 1.1453 .6831 .3919 | 5.96 XV/L -5.25 -4.50 -3.75 | -50 CPW 0094 0063 0026 | 2520 | .759 CP 1.1476 .6958 .4149 | 5.97 XV/L -5.25 -4.50 -3.75 | .50 CPW 0084 0052 0003 |
| 2517 X/L .000 | .717 CP 1.1355 .6263 | 5.81 XV/L -5.25 -4.50 | .50 CPV 0052 | 2518 X/L .000 | .739 CP 1.1398 .6587 .3681 .0782 -1704 | 5.87 XV/L -5.25 -4.50 | .50 CPW .8896 | 2519 X/L .000 .004 .008 .015 .025 | .751 CP 1.1453 .6831 .3919 .1111 | 5.96 XV/L -5.25 -4.50 | - 50 CPW 6094 6063 6026 6051 6074 | 2520 X/L .000 .004 .008 .015 | .759 CP 1.1476 .6958 .4149 .13191116 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 | -50 CPW 0084 0052 0003 0055 0107 |
| 2517 X/L .000 .004 .008 .015 .025 .046 .060 | .717 CP 1.1355 .6263 .3268 .6297 2151 4782 6255 9694 | 5.81 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | -50 CPW 0052 0020 -0010 -0036 -0057 -0071 -0003 | 2518 X/L .000 .004 .008 .015 .025 .040 .060 | .739 CP 1.1398 .6587 .3681 .0782 -1704 -4244 -5678 -8896 | 5.87 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | .50 CPW .0096 0049 0003 .0049 .0070 .0070 | 2519 X/L .000 .004 .008 .015 .025 .040 .060 .080 | .751 CP 1.1453 .6831 .3919 .1111 1378 3905 5370 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | - 50 CPW - 0094 - 0063 - 0026 - 0074 - 0082 - 0060 | 2520 X/L .000 .004 .008 .015 .025 .940 .060 | .759 CP 1.1476 .6958 .4149 .13191116365651488160 | 5.97 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | - 50 CPW 0084 0052 0003 .0055 0107 .0112 .0110 |
| 2517 X/L .000 .004 .008 .015 .025 .040 .060 .100 .140 | .717 CP 1.1355 .6263 .3268 .62972151478262559694 -1.012877797876 | 5.81 XV/L -5.25 -4.50 -3.75 -1.50 -1.25 -1.00 75 50 | -50 CPW 0052 0020 0030 0037 0011 0023 0144 0276 | 2518 X/L .000 .004 .008 .015 .025 .046 .080 .100 .100 .180 | .739 CP 1.1398 .6587 .3681 .0782 -1704 -4244 -5678 -5678 -9703 -9287 -9287 | 5.87 X \(\sqrt{L} \) -5.25 -4.50 -3.75 -1.50 -1.25 -1.007550 | .50 CPW .0096 -0049 -0003 .0040 .0070 .0056 .0016 -0132 -0272 -0277 | 2519 X/L .000 .004 .008 .015 .025 .025 .040 | .751 CP 1.1453 .6831 .3919 .1111 -1378 -3905 -5370 -8466 -9285 -9139 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | - 50 CP W - 609 4 - 9063 - 9026 - 907 4 - 9082 - 9060 - 9097 - 90248 - 9578 | 2520 X/L .000 .004 .008 .015 .025 .025 .060 .060 | .759 CP 1.1476 .6958 .4149 .1319111636565148 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 | -50 CPW 0084 0052 0003 -0055 -0107 -0112 |
| 2517 X/L .000 .004 .008 .015 .025 .040 .060 .080 .100 .140 .220 | .717 CP 1.1355 .6263 .3268 .6297 .2151 -4782 -6255 -9694 -1.0128 | 5.81 X¥/L -5.25 -4.50 -3.75 -2.25 -1.50 -1.25 -1.00 75 25 00 25 | - 50 CPW 0052 0020 0010 0057 0011 00276 00560 00973 11554 | 2518 X/L .000 .004 .015 .025 .046 .080 .140 .140 .220 .260 | .739 CP 1.1398 .6587 .3681 .0782 -1704 -4244 -45678 -8896 -9703 -9287 -9005 -8575 -7998 | 5.87 X \(\(\Lambda \) \(\Lambda \) 5.25 -4.50 -3.75 -2.25 -1.50 -1.25 -1.00 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 -2.5 | .50 CPW .0096 -0049 -0003 .0070 .0070 .0016 -0132 -0272 -0577 -1535 | 2519 X/L .000 .004 .015 .025 .040 .080 .140 .140 .260 .260 | .751 CP 1.1453 .6831 .3919 .1111 .1378 .3905 .5379 .8466 .9285 .9139 .9032 .9096 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -1.50 -1.50 -1.25 -1.607525 | -50 CPW -0094 -0063 -0026 -0051 -0074 -0082 -0062 -0097 -0248 -0578 -11619 | 2520 X/L .000 .004 .015 .025 .045 .060 .060 .140 .140 .220 | .759 CP 1.1476 .6958 .4149 .1319 .1116 .3656 .5148 .8160 .9087 .8958 .8929 .9124 | 5.97 X V /L -5.25 -4.50 -3.75 -3.20 -1.50 -1.50 -1.50 -1.50 -2.55 -00 -2.55 | -50 CPW -0054 -0052 -0055 -0112 -0110 -00173 -0258 -1092 -1733 |
| 2517 X/L .000 .004 .008 .015 .025 .046 .066 .100 .140 .223 .223 .340 .340 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 6255 -7779 -78697 -71697 -71697 -71697 -6411 | 5.81 X¥/L -5.25 -4.50 -3.75 -3.40 -2.25 -1.50 -7.50 -2.55 -2.50 -2.55 -1.60 -7.50 -2.55 -1.60 | - 50 CPW - 0052 - 0010 - 0010 - 0037 - 0011 - 0003 - 0144 - 0276 - 0560 - 0973 - 1354 - 1462 - 1365 | 2518 X/L .0004 .008 .015 .040 .060 .100 .100 .220 .300 .340 | .739 CP 1.1398 .6587 .3681 .0782 -1704 -5678 -9782 -9782 -1978 .8575 -8575 -6661 -6673 | 5.87 XVA. -5.25 -4.50 -3.75 -1.50 -1.25 -1.50 -2.55 -2.55 -2.55 -2.55 -2.55 -2.55 -2.55 -2.55 -2.55 -2.55 -3.75 -2.55 -3.75 -2.55 -3.75 -2.55 -3.7 | .50 CPW .8696 0849 0849 0872 0857 08272 08277 1535 1773 1535 | ≥519 X/L -8084 -8085 -8155 -9489 -8689 -1099 -1866 -2269 -3899 -3489 | .751 CP 1.1453 .6831 .3919 .1111 -1378 -3905 -9285 -9285 -9132 -9696 -8672 -8681 -8641 -6438 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.50 -7.50 -2.55 -2.56 -7.50 -7.51 | -58 CPW - 6894 - 8865 - 8851 - 8874 - 6866 - 6897 - 6248 - 6578 - 61584 - 11544 | 2520 X/L .000 .004 .008 .015 .025 .040 .060 .080 .140 .140 .180 .220 | .759 CP 1.1476 .6958 .4149 .1319 -1116 -3656 -3656 -3656 -9087 -8958 -8929 -9124 -8951 -8845 -9081 | 5.97 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.55 -1.50 -2.55 -2.55 -2.55 -2.51 | -50 CPW -0084 -0052 -0003 -0057 -0112 -0110 -0049 -0073 -0258 -0582 -1733 -2066 -1631 |
| 2517 X/L .000 .004 .004 .015 .025 .046 .060 .100 .140 .220 .260 .300 | .717 CP 1.1355 .6263 .3268 .8297 2151 4782 6255 9694 -1.0128 -7779 -7876 -7697 -7160 -6855 | 5.81 X¥/L -5.25 -4.50 -3.75 -2.25 -1.50 -1.25 -1.00 -7.50 -2.50 -2.50 -7.50 -7.50 | -50 CPW 0052 0020 0010 0010 0057 0011 00276 0560 0560 1054 1054 1054 | 2518 X/L .0004 .0005 .025 .0400 .0800 .1400 .1800 .2600 .3000 | .739 CP 1.1398 .6587 .3681 .4782 -11784 -1.8678 -8896 -9783 -9287 -9805 -1.7998 -6767 | 5.87 XV/L -5.25 -4.50 -3.75 -1.50 -1.25 -1.00 -7.50 -2.55 -1.00 -7.50 -2.55 -5.50 -7.50 | .50 CPW .8896 -8049 -8049 -8070 -8070 -8013 -8272 -8272 -1535 -1773 -1478 -147 | X/L • 000 • 004 • 005 • 015 • 025 • 040 • 100 • 10 | .751 CP 1.1453 .6831 .3919 .1111 -1378 3905 5370 8466 .9285 9139 985 9861 8672 8672 86321 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.5550 -2.5550 -2.55502525252525252525 | .50 CPW 0094 0026 0026 0027 00248 0027 0248 0037 1084 1619 1851 1544 1544 1544 1928 | 2520 X/L .000 .004 .008 .015 .025 .040 .060 .100 | .759 CP 1.1476 .6958 .4149 .1319 -1116 -3656 -5148 -8160 -89687 -8958 -8929 -9124 -8951 -8845 -9062 -8963 | 5.97 XV/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.50 -1.55 -1.50 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -5.00 -2.55 -7.55 | - 50 CPW - 0084 - 0052 - 0063 - 00157 - 0112 - 0110 - 0043 - 0043 - 0055 - 0162 - 11992 - 11992 - 11992 - 11631 - 1264 - 1631 - 1264 - 0977 |
| 2517 X/L .080 .084 .088 .015 .025 .046 .160 .160 .160 .160 .160 .160 .160 .16 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 -6255 -9694 -1.0128 -7779 -7876 -7160 -63655 -6411 -6394 -6389 -66864 | 5.81 X¥ /L -5.25 -4.50 -3.75 -3.425 -1.50 -2.25 -1.60 -7.50 -2.50 -1.5 | .50 CPV -0052 -0020 -0010 -0057 -0011 -0013 -0144 -0276 -0560 -0973 -1354 -1602 -1365 -1107 -08685 -1107 -08685 -08581 -08581 | 2518 X/L .0004 .004 .015 .024 .026 .034 .140 .140 .140 .260 .340 .420 .460 .540 .540 .540 .540 .540 .540 .540 .640 | .739 CP 1.1398 .6587 .3681 .9782 .1784 .4244 .5687 .9287 .9985 .7998 .6767 .66673 .6736 .6736 .6736 .7122 .7243 | 5.87 XV/L -5.25 -4.50 -3.75 -7.00 -2.25 -1.50 -1.25 -1.80 -7.5 -1.80 -7.5 -1.80 -7.5 -1.80 -7.5 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.5 -7.6 -7.6 -7.5 -7.6 -7.5 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 | .50 CPW .0096 .0049 .0049 .0070 .0070 .0070 .0070 .0070 .0070 .0070 .0070 .107 | \$519 X/L .0004 .0004 .015 .0004 .015 .0004 .015 .0004 .000 | .751 CP 1.1453 .6831 .3919 .1117 1378 3965 985 9839 9832 9932 98672 8611 6438 6438 6438 6474 6474 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -1.50 -1.50 -1.50 -2.25 -1.60 -7.50 -1.50 -1.50 -7.50 | .50 CPV 0094 0063 0082 0082 0082 0097 0248 11619 1546 1546 1549 1280 0928 0928 0928 0928 | 2520 X/L .000 .004 .015 .025 .025 .025 .026 .026 .026 .026 .026 .026 .036 | .759 CP 1.1476 .6958 .4149 .1319 -1116 -3656 -5148 8846 -9087 -8958 -8929 -9124 -8951 -8865 -9081 -9863 -55788 -55788 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -7.50 -2.5 -1.00 -7.50 -1.00 -7.50 -1.00 -7.50 - | -50 CPW -0084 -0052 -0062 -0063 -0112 -0112 -0112 -0118 -0073 -0258 -0582 -1692 -1631 -1644 -09773 -1644 -09773 -0648 |
| 2517 X/L .888 .805 .805 .825 .806 .806 .189 .109 .109 .228 .209 .388 .306 .306 .306 .306 .306 .306 .306 .306 | .717 CP 1.1355 .6263 .3268 .6297 .2151 -4782 .6255 -9694 -1787 -71697 -71697 -71697 -7697 -6411 -6399 -6382 -66664 -6358 -6338 | 5.81 XVA. -5.25 -4.56 -3.75 -3.85 -1.25 -1.8075502525252525252525 | .50 CPW -0052 -0020 -0010 -0037 -0011 -0003 -0144 -0276 -0576 -0576 -1376 -1366 -1376 -1462 -1366 -1462 -1366 -1462 -1366 -1462 -1366 -1462 -1462 -1568 -156 | 2518 X/L | .739 CP 1.1398.6587.3681.0782.1794.444.5678.6787.9889.6767.6767.6673.67673.67673.67673.6739.6739 | 5.87 XW/L -5.25 -4.55 -3.75 -3.06 -2.25 -1.25 -1.08 -2.25 -1.08 -2.56 | .50 CPW .0896 .08093 .08090 .08056 .08156 .08152 .08277 .10827 .1773 .1478 .1773 .1478 .1182 .0816 .08 | X/L - 000 - 004 - 004 - 0015 - 025 - 025 - 046 - 100 - 1 | .751 CP 1-1453 -6831 -3919 -1111 -1378 -3985 -9385 -91 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.60 -2.55 -1.60 -2.55 -1.60 -2.50 | .58 CPW 0894 0863 0807 0807 0807 0807 0807 0807 1851 1544 1534 1544 - | 2520 X/L .000 .004 .015 .025 .040 .080 .100 .120 .140 .120 .220 .340 .340 .420 .580 | .759 CP 1.1476 .6958 .4149 .1319 -1116 -3656 -3087 .8160 -3087 .8958 -8929 -9124 -8951 -8963 -5878 -5788 -647 -7539 -8167 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -7.5 -2.55 -1.00 -7.5 -1.00 -7.5 -1.00 -7.5 -1.00 -7.5 -7.5 -7.5 -7.5 -7.5 -7.5 -7.5 -7.5 | - 50 CPW - 0084 - 0052 - 0062 - 00112 - 0112 - 0114 - 00473 - 0258 - 1582 - 1792 - 1792 - 1631 - 1631 - 1631 - 1631 - 1677 - 0723 - 0723 |
| 2517 X/L .088 .085 .085 .085 .086 .086 .189 .189 .228 .266 .388 .429 .466 .588 .588 .688 .788 .888 .988 .988 | .717 CP 1.1355 .6263 .3268 .6297 .2151 -4782 .6255 -9694 -17876 -71697 -7169 -7876 -6411 -6394 -6359 -6358 -6358 -6374 -63812 .6236 | 5.81 X V /L -5.25 -4.50 -3.75 -3.825 -1.25 -1.80 -2.50 | .50 CPW -0052 -00820 -00830 -00857 -0077 -0011 -0083 -0144 -0276 -0356 -0356 -1365 -1365 -1365 -0685 - | 2518 X/L | .739 CP 1.1398.6587.3681.0782.4244.55678.6896.6896.6966.6966.6966.6966.6966.6 | 5.87 XW/L -5.25 -4.50 -3.75 -3.85 -1.25 -1.25 -1.26 -1.25 -1.25 -1.26 -2.55 -2.55 -2.55 -2.55 -2.55 -3.56 -5.55 -4.58 | .50 CPW .0096 -0083 .0049 .0070 .007 | 2519 X/L -0004 -0005 -015 -0005 -015 -0005 -00 | .751 CP 1-1453 -6831 -3919 -1111 -1378 -3995 -1378 -9985 -9193 -9985 -9193 -9667 -6321 -6474 -6438 -67185 -7749 -7749 -7886 -7749 -7887 -7987 -7 | 5.96 XV/L -5.25 -4.58 -3.75 -3.09 -2.25 -1.58 -1.25 -1.68755825 -1.6825253625363737373737373737 | - 58 CPW - 4894 - 88626 - 8857 - 8862 - 8867 - 8862 - 8857 - 1165 - 1155 - 1154 - 115 | 2520 X/L .000 .000 .000 .000 .010 .000 .100 .1 | .759 CP 1.1476 .6958 .4149 .1319 -1116 -3656 -3168 -8168 -8168 -8989 -9124 .89845 -8985 -8985 -8985 -89863 -5831 -5831 -5788 -58467 -75398 -8167 -75386 | 5.97 XW/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.25 -1.00755025502550255025502550255025502550255025502550255025502550255025505025505050505050505 | - 50 CPW - 6064 - 0003 - 0053 - 0112 - 0112 - 0112 - 00473 - 02582 - 10923 - 26620 - 1631 - 1267 - 1273 - 2652 - 10923 - 2652 - 10923 - 2652 - 10923 - 2652 - 10923 - 26620 - 266 |
| 2517 X/L .080 .004 .004 .005 .025 .040 .060 .140 .140 .222 .266 .386 .426 .386 .426 .546 .546 .546 .547 .547 .547 .548 .548 .548 .548 .548 .548 .548 .548 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 -6255 -9694 -17876 -7697 -7168 -7797 -7168 -6394 -6394 -6394 -6394 -6394 -6394 -6394 -6394 -6394 -6394 | 5.81 X ¥ /L -5.25 -4.50 -3.75 -3.625 -1.26 -1.2675 -1.6025 -1.6025505050505050505 | CPV -0852 -0828 -0818 -0818 -0837 -0857 -0857 -0817 -0815 -1376 -11376 -1107 -8865 -0885 -08415 -08316 -08415 -08089 -08089 -08089 | 2518 X/L 844855 804855 804855 804868 11488 112280 23848 1488688 14888 15288 2688 26888 26888 26888 26888 26888 26888 26888 268888 268888 268888 | .739 CP 1.1396 .6587 .3681 .0782 .1704 .0569 .1704 .0569 .1704 .0569 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .1709 .1705 .17 | 5.87 XV/L -5.25 -4.50 -3.75 -7.00 -2.25 -1.50 -1.25 -1.50 -2.50 | .50 CPW .0896 -0049 -0003 -0049 -0070 -0070 -0070 -0070 -0070 -1072 -1072 -1173 -1478 -1478 -1478 -1478 -1478 -1478 -0069 -006 | \$519 X/L -0004 -0048 -015 -040 -0809 -1400 -1600 -1600 -1800 | .751 CP 1.1453 .6831 .3919 .1111 -1378 -3995 -5379 -8466 -9285 -9139 -9632 -9696 -8672 -8611 -8641 -6474 -6712 -7745 -7745 -7749 -7749 -7749 -7749 -6712 -7749 -6712 -7749 -6712 -7749 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.25 -1.26 -7.50 -2.25 -1.25 -1.25 -2.30 -2.50 | - 58 CPW 0894 08626 0897 0848 0897 0248 0578 1851 1544 1208 1208 0618 0 | 2 520 X/L .000 .004 .015 .025 .940 .050 .140 .120 .260 .140 .340 .340 .420 .540 .540 .540 .580 .580 .680 .680 .680 | .759 CP 1.1476 .6958 .4149 .319 -1116 -3656 -31656 -31656 -38958 -8929 -9124 -8951 -5881 -5788 -6447 -7539 -8169 -6447 -7539 -8169 -2962 | 5.97 XW/L -5.25 -4.58 -3.75 -3.08 -2.25 -1.50 -1.25 -1.08 -7.50 -2.50 -1.25 -5.00 -7.50 | -50 CPW -0084 -00503 -00503 -00157 -0112 -0119 -00473 -0258 -0582 -1733 -2066 -16231 -1624 -09723 -0648 -05158 -0488 -04001 |
| 2517 X/L .000 .001 .008 .015 .025 .046 .066 .100 .140 .1220 .266 .380 .380 .420 .466 .590 .590 .590 .590 .590 .590 .590 .590 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 -6255 -9694 -17876 -7697 -7168 -7797 -7168 -6358 -6358 -6358 -6358 -6358 -6358 -6358 -6358 -6358 -6358 -6358 -6358 | 5.81 X ¥ /L -5.25 -4.58 -4.58 -2.25 -1.267528292529252925292525252525252525 | .50 CPV -0052 -0020 -0010 -0010 -0010 -0011 -0003 -0110 -0256 -01107 -01 | 2518 X/L | . 739 CP 1.1398 . 6581 | 5.87 XW/L -5.25 -4.50 -3.75 -2.25 -1.25 -1.26 -1.25 -1.26 -2.56 -2.56 -2.56 -2.56 -2.56 -2.56 -2.56 -2.56 -2.56 -3.56 -3.56 -3.56 -3.56 -3.56 | .50 CPW .0096 -0083 .0049 .0070 .007 | 2519 X/L -000 4 -000 5 -015 5 -040 6 -0815 5 -040 6 -1400 | .751 CP 1.1453 .6831 .3919 .1111 -1378 -3995 -5379 -8466 -9285 -9139 -9895 -8672 -88511 -86418 -6478 -6712 -7745 -7745 -7745 -7746 -7745 -7745 -7745 -7745 -7749 -6712 -7749 -6712 -7749 -6712 -7749 -6712 -7749 -6712 -7749 -6712 -7749 -6712 -7749 -6712 -7749 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.25 -1.26 -7.50 -2.50 -1.25 | - 58 CPW089409630926095702480578196415941 | 2 520 X/L .000 4 .004 8 .015 9 .060 0 .015 9 .060 0 .140 1 .220 2 .260 0 .340 0 .340 0 .500 0 .5 | .759 CP 1.1476 .6958 .4149 .1319 .1116 .3656 .5148 .8169 .9087 .8958 .9987 .8958 .9987 .8962 .9962 .8963 .5788 .5788 .5788 .5831 .5788 .6447 .7539 .8964 .8964 .8964 .8964 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -7.5 -5.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 -2.50 -7.5 1.00 - | - 50 CP W - 0084 4 - 0053 - 00657 - 0112 - 00473 - 02582 - 15982 - 1631 - 1631 - 1631 - 1631 - 1631 - 0962 4 4 11 - 0962 4 4 11 - 0962 4 4 11 - 0962 4 4 11 - 0962 2 |
| 2517 X/L .000 .004 .008 .015 .025 .040 .066 .070 .140 .123 .260 .340 .340 .356 .420 .456 .566 .578 .620 .788 .990 .995 .995 .995 .995 .995 .995 .996 .996 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 -6255 -9694 -1.0128 -7799 -7876 -7160 -6855 -6411 -6394 -6398 -6382 -6368 -63182 -66634 -6358 -6378 -3127 -8812 -8236 .6794 -93794 -9871 | 5.81 X ¥ /L -5.25 -4.50 -3.75 -3.625 -1.26 -2.25 -2.50 -2.50 -2.50 -2.50 -2.50 -3.75 -3.60 -3.75 -3.75 -3.60 -3.75 -3. | CPV -0052 -0020 -0010 -0 | 2518 X | . 739 CP 1.1398 . 6587 . 3681 . 8782 | 5.87 X V /L -5.25 -4.50 -3.75 -7.00 -1.25 -1.20 -2.25 -1.25 | .50 CPW .0096 -0049 -0003 .0040 -0070 .0070 .0070 .0070 -01577 -1182 -11773 -1478 -1478 -1478 -1182 -0577 -1182 -0576 -0538 -0448 -0488 -0496 -0538 -0496 -0 | \$519 X/L .00445 .0155 .0165 | .751 CP 1.1453 .6831 .3919 .1117 -1378 -3995 -5379 -8466 -9285 -9139 -9832 -98932 -98932 -98932 -6671 -6474 -6712 -7345 -77962 | 5.96 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.50 -2.50 -2.50 -2.50 -2.50 -2.50 -2.50 -3.75 -3.00 -3.00 | - 50 CPW009400626009700826009700248161915461546154615461200097220618057308430843084308430843084308430844087308440873 | 2 520 X/L .000 4 .004 8 .015 .000 9 .015 .000 9 .100 9 . | .759 CP 1.1476 .6958 .4149 .3119 -1116 -3656 -3656 -3087 -8958 -8959 -9124 -8951 -88951 -5788 -6477 -7539 -8167 -7539 -8167 -7539 -8167 -2962 -8963 -6438 -6438 -6988 -6447 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -7539 -8167 -8 | 5.97 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.00 -2.50 -7.50 -2.50 -7.50 -2.50 -7.50 -3.75 -3.00 | -50 CPW -0084 -00523 -00557 -0112 -0112 -0112 -0112 -0112 -01582 -1582 -1733 -02582 -1631 -1624 -16231 -1624 -05158 -0481 -05158 -0481 -06242 -0624 -06242 |
| 2517 X/L .888 .805 .805 .805 .805 .805 .805 .80 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 -6255 -9694 -17876 -7697 -71697 -7 | 5.81 X ¥ /L -5.25 -4.58 -3.75 -1.26 -1.27 -1.27 -2.25 -1.28 -1.25 -1.28 -1.25 -1.28 -1.25 -1.28 -1.25 -1.28 -1.25 -1.28 -1.28 -1.25 -1.28 | CPW -0852 -0828 -0818 -0818 -0817 -0877 -0877 -0877 -0876 -1354 -1354 -1354 -1402 -1366 -0913 | 2 518 X | .739 CP 1.1398.6587.3681.8782.4244.4244.8896.6767.6673.6673.6673.6673.6673.6673.66 | 5.87 X ¥ /L -5.25 -4.575 -1.05 -1.25 -1.07 -2.25 -1.08 -2.25 -1.08 -2.25 -1.08 -2.25 -1.08 -2.25 -1.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 -3.75 -3.08 | .50 CPW .0896 .0849 .08070 .0856 .0816 .08156 .08156 .1912 .0877 .1535 .1472 .1535 | \$519 X/L ********************************* | .751 CP 1-1453 -6831 -3919 -1111 -1378 -3995 -9855 -9132 -9996 -8672 -8681 -6438 -6321 -6474 -6712 -77345 -77945 - | 5.96 XV/L -5.25 -4.50 -3.75 -1.25 -1.26 -1.25 -1.26 -2.25 -1.26 -2.25 -2.25 -2.25 -3.75 -3.45 -2.25 -1.26 -3.75 -3.45 -3.75 -3.45 -3.75 -3.45 -3.75 -3.45 -3.75 -3.45 -3.75 -3.45 -3.75 | - 58 CPW 6894 6963 - 6926 - 9851 - 9868 - 9857 - 9868 - 1984 - 1615 - 1544 - 1288 - 9722 - 9618 - 9837 - 9848 - 9837 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9878 - 9848 - 9888 | 2 520 X/L .000 4 .004 8 .015 9 .025 9 .040 9 .015 9 .040 9 .180 9 | .759 CP 1.1476 .6958 .4149 .3119 -1116 -3656 -3656 -31656 -38958 -8919 -8951 -8951 -8962 -8961 -8963 -6947 -7539 -8169 -2962 -8963 -6947 -7539 -8169 -8963 -6947 -7539 -8169 -8963 -6947 -7539 -8169 -8963 -9962 -8963 -9962 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.00 -2.50 -7.51 -3.00 -2.50 -7.52 -5.00 -7.53 -5.00 -7.55 -5.00 -7.55 -5.00 -7.55 -5.00 -7.55 -5.00 -7.55 -5.00 -7.55 -5.00 -7.50 -7.00 -7.50 | -50 CPW -00842 -000503 -000507 -0112 -0112 -0112 -0112 -0112 -0112 -01403 -02582 -17336 -16231 -16231 -16231 -16231 -165158 -04401 -00042 -01283 -01283 -01283 -01283 -01283 -01283 -01283 -01283 -01283 -01283 -01283 -01483 |
| 2517 X/L .088 .085 .085 .085 .085 .086 .086 .189 .189 .228 .268 .388 .388 .388 .588 .998 .975 .1898 .988 .998 .975 .1898 .888 .988 .988 .988 .988 .988 .98 | .717 CP 1.1355 .6263 .3268 .6297 .2151 -4782 .6255 -9694 -17876 -71697 -7169 -6855 -71697 -7169 -6855 -68477 -6411 -6394 -6358 -6374 -6838 -6382 -6388 -6398 -6388 -6398 -6388 -6398 -6388 -6398 -6388 -6398 -6388 -6398 -6388 -6398 -6388 | S.81 X ¥ /L -5.25 -4.57 -3.425 -1.25 -1.26 -2.25 -1.26 -2.25 -2. | .50 CPW005200200019 - | 2 518 X | .739 CP 1.1398.6587.3681.6782.6782.6782.6782.6782.6782.6782.6782 | 5.87 X W / L -5.25 -4.575 -2.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1 | .50 CPW .0096 .0043 .0049 .0070 .0070 .0070 .0070 .0070 .0070 .0070 .1027 .1027 .1027 .1027 .1027 .1132 .1478 .1478 .00716 .0097 .0098 .00 | \$519 X/L ***B84 **B84 ***B84 **B84 * | .751 CP 1-1453 -6831 -3919 -1171 -1378 -3995 -1378 -3995 -9982 -9985 -9183 -9986 -6478 -6478 -6712 -7742 -77 | 5.96 XV/L -5.25 -4.50 -3.75 -3.025 -1.25 -1.26 -2.25 -1.26 -2.25 -2.25 -2.25 -3.75 -3.76 -2.25 -1.25 | - 58 CPW - 6894 - 68626 - 6857 - 68626 - 6857 - 68626 - 6857 - 1864 - 1544 - 1286 - 1544 - 1286 - 6722 - 6618 - 6528 - 6466 - 6373 - 6843 - 6846 - 6373 - 6843 - 6846 - 6344 - 6846 - 6346 - 6446 - 6447 | 2 520 X /L 000 4 000 8 01 15 9 060 0 1 400 0 1 400 0 2 20 0 3 400 0 4 400 0 3 400 0 4 400 0 9 9 00 0 9 1 | .759 CP 1.1476 .6958 .4149 .1319 .1116 .3656 .8169 .8169 .89124 .89645 .89645 .56487 .7538 .69645 .69645 .69646 .69666 .69666 .69666 .69666 .69666 .69666 .69666 .996666 .99666 .99666 .99666 .99666 .99666 .99666 .99666 .99666 .99666 | 5.97 XW/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.087550255075 | - 50 CP W - 608523 - 609523 - 60112 - 609523 - 60112 - 609523 - 60112 - 609523 - 169923 - 16 |
| 2517 X/L .888 .805 .805 .805 .805 .805 .805 .80 | .717 CP 1.1355 .6263 .3268 .6297 -2151 -4782 -6255 -9694 -17876 -1876 -71896 -7876 -71896 -7897 -71895 -6411 -6399 -6382 -6568 -6382 -6568 -6382 -6534 -6394 -6394 -6398 | S.81 X ¥ 2.5 4.5 6.7 4.5 7.5 4.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7 | CPW - 0852 - 0828 - 0818 - 0818 - 0837 - 0847 - 081 | 2 5 1 1 8 4 8 5 5 5 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | .739 CP 1.1396.6587.3681.0782.6782.6782.6782.6782.6782.6782.6782.6 | 5.87 X V /L -5.25 -4.50 -3.75 -3.02 -1.25 -1.00 -2.25 -1.00 -2.5 | .50 CPW .0896 .0049 .0003 .0049 .0070 .0056 .0016 .0132 .0272 .1535 .1478 .1478 .1478 .1478 .1478 .1478 .0669 .056 | \$ 519 X | .751 CP 1.1453 .6831 .3919 .1111 -1378 -3995 -5379 -8846 -9287 -9892 -8672 -88511 -8641 -6478 -6712 -7742 -7742 -7742 -6712 -7742 -6712 -7742 -6712 -7742 -6712 -7742 -7 | 5.96 XVA5.25 -4.50 -3.75 -3.00 -1.25 -1.50 -1.25 - | - 58 CPW0894086260897408626089740862608974185115441288812888128881288812888 - | 2 5 2 0 0 X | .759 CP 1.1476 .6958 .4149 .3119 .1116 -3656 -3656 -31656 -38958 -8912 -8951 -8951 -8962 -8963 -8963 -5788 -5788 -5788 -5788 -5788 -5788 -5788 -6447 -7539 -8167 -75962 -8643 -6957 -6177 | 5.97 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -5.00 -2.50 -7.51 -3.00 -2.50 -7.51 -3.00 -2.50 -7.51 -3.00 -2.50 -7.51 -3.00 -2.50 -7.51 -3.00 -2.50 -7.50 | -50 CPW -00823 -000523 -00112 -00112 -00112 -00140 -0073 -01582 -17336 -16321 -16247 -07248 -055822 -064011 -0004232 -0548245 -064011 -0004232 -0640633 -06375 |
| 2517 X/L .080 .080 .080 .085 .085 .086 .086 .109 .149 .229 .246 .340 .340 .469 .540 .540 .540 .540 .540 .540 .540 .540 | .717 CP 1.1355 .6263 .3268 .327 .2151 -4782 .6255 -9694 -7777 -6411 -6394 -6359 -6358 -6358 -6358 -6358 -6358 -6368 -6368 -6368 -6368 -6368 -6368 -6368 -637 -6889 -6889 -6888 -6388 | S.81 X ¥ 2.5 - 4.5 - 5.2 - 5. | CPW - 0852 - 0828 - 0818 - 0818 - 0818 - 0857 - 0877 - 0817 - 0816 - 1356 - 1356 - 1366 - 1107 - 0865 - 0885 - 0815 - 0815 - 0885 - 0815 - 0815 - 0816 - 0815 - 0816 - 0815 - 0816 - 0817 - 0816 - 0817 - 0816 - 0817 - 0816 - 0817 - 0816 - 0817 - 0816 - 0818 - 0817 - 0816 - 0817 - 081 | 2 5 1 8 4 8 5 5 6 9 8 9 8 9 8 9 8 9 8 9 8 9 9 8 9 9 8 9 9 9 9 8 9 | . 739 CP 1.1398.6587.3681.6782.6782.6782.6782.6782.6782.6782.6782 | 5.87 X V /L -5.25 -4.50 -3.75 -3.025 -1.25 -1.00 -2.25 -1.00 -2.50 -2.00 -2. | .50 CPW .0896 .0849 .08070 .0856 .0816 .0132 .0272 .1827 .1573 .1478 .1478 .1478 .1478 .1478 .1478 .0879 .08 | \$519 X/L ***B84 **B84 ***B84 **B84 * | .751 CP 1-1453 -6831 -3919 -1171 -1378 -3995 -1378 -3995 -9985 -9139 -9666 -6672 -66712 -7742 -7 | 5.96 XV /L -5.25 -4.56 -3.75 -3.025 -1.25 -1.26 -2.25 -1.25 -1.26 -2.5 | - 58 CPW0894096309260957024805781968165715441692154415941544169206180937044109480946093709480946094709480 | 2 520 X | .759 CP 1.1476 .6958 .4149 .1319 .1316 .3656 .8169 .8169 .89124 .89845 .99623 .8945 .5831 .57487 .7539 .8167 .2962 .8963 .9124 .8963 .9124 .9962 .8963 .99121 .9962 .9643 .9912 .9962 .9643 .9912 .9962 .9643 .9912 .9968 | 5.97 XW/L -5.25 -4.59 -3.75 -3.025 -1.25 -1.00 -2.25 -1.00 -2.50 -7.50 -2.25 -1.00 -2.50 -7.50 -2.50 -7.50 -2.50 -7.50 | - 50 CP W 4 2 - 000523 - 000557 - 01112 - 000523 - 01112 - 000473 - 01112 - 010473 - 01112 - 010473 - 01112 - 010473 - 0112 - 1012 - 1012 - 1012 - 1012 - 1012 - 1012 - 1012 - 1012 - 1012 - 01 |
| 2517 X/L -888 -868 -865 -865 -865 -866 -866 -189 -149 -229 -266 -389 -466 -598 -995 -975 -189 -889 -986 -199 -199 -199 -199 -199 -199 -199 -19 | .717 CP 1.1355 .6263 .3268 .3296 .6255 -9694 -7777 -6110128 -7787 -7160 -6855 -6656 -6358 -6399 -6389 -66534 -6399 -6388 -6318 -6399 -6388 -6318 -6399 -6388 -6318 -6399 -6388 -6318 -6399 -6388 -6318 | S.81 X | .50 CPW0052008200082000830008310083014402760866513761 | 2 5 1 1 8 4 4 8 5 5 1 8 4 8 6 9 8 9 8 | . 739 CP 1.1398.6587.3681.6782.6782.6782.6782.6782.6782.6782.6782 | 5.87 X W / L -5.25 -4.575 -1.26 -1.27 -1.28 -1 | .50 CPW .0096 .0083 .0049 .0070 .007 | \$519 X.L | . 751 CP 1-1453 -6831 -3919 -1171 -3985 -1378 -8466 -9285 -9193 -9861 -6474 -6438 -6381 -6474 -6478 -6718 -7345 -7965 -9133 -9985 -9133 -9986 -6391 -6 | 5.96 XV /L -5.25 -4.58 -3.75 -3.02 -1.25 -1.26 -2.25 -2.25 | - 58 CPW 8894 88626 - 8851 - 8868 - 8868 - 8868 - 8858 - 8558 - 8558 - 8558 - 8668 - 8868 - | 2 5 2 0 X | .759 CP 1.1476 .6958 .4149 .13116 -3656 -8169 -8169 -89124 .8963 -5831 -5845 -5845 -6942 -89663 -58467 -7598 -8167 -8968 -89694 | 5.97 XW/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.00755025 -5.00 1.2550 1.2550757575757575 | - 50 CP W 4 - 000503 - 000503 - 00112 - 00112 - 00112 - 00112 - 00112 - 001582 - 101692 - 10 |

| Table | 3.4 | Contin | nued | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|
| NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6+RE | ALPHA | NR. | MACH | E-6+RE | ALPHA |
| 2521 | .770 | 5.99 | - 50 | 2522 | .779 | 5.89 | . 50 | 2523 | -801 | 5.92 | - 50 | 2524 | .765 | 5.88 | . 50 |
| X/L | СР | XVA | CPW | X/L | СР | XW/L | CPW | X/L | ĊР | XVA | CPW | X/L | СР | XW/L | CPW |
| .000 | 1.1567 | -5.25 -4.50 | 0077 0037 | -000 | 1.1597 | -5.25 -4.50 | 0088 0057 | .000 | 1-1559 | -5.25 -4.50 | 0124 | -000 | 1.1450 | -5.25 -4.50 | 0100 |
| -008 -015 | • 4418 • 1583 | -3.75 -3.00 | .0017 | .008 .015 | · 4790 · 2053 | -3.75 -3.00 | -0001 -0087 | .008 .015 | · 5472 · 2804 | -3.75 | 0012 | -008 -015 | .4372 | -3.75 -3.00 | .000: .0038 |
| .025 | 0800 | -2.25 | .0118 .0103 | •025 •040 | 2886 | -2.25 -1.50 | .0098 .0150 | .025 | 2071 | -2.25 | .0139 .0208 | .025 | 0890 | -2.25 | .0078 .0123 |
| .080 | 4790 | -1.25 | .0103 | -060 -080 | 4464 | -1.25 | .0155 | ·060 | 3601 6617 | -1.25 | .0223 .0225 | .060 | 4890 | -1.25 | .0063 .0042 |
| -140 | 8647 8662 | 75 | 0049 | -140 | 8247 | 75 | 0182 | -100 | 7372 7301 | 75 | -0105 0015 | -140 | 8810 | 75 | 0078 0231 |
| -180 | 8702 8957 | 25 | 0535 | -180 | 8287 | 25 | 0494 | ·180 ·220 | 7503 7793 | 25 | 0328 0876 | .180 | 8733 | 25 | 0582 1110 |
| ·260 | 8958 | ·25 | 1912 | -260 -300 -340 | 8649 | ·25 | 1935 2446 1879 | ·260 | 7888 7822 | ·25 | 1728 | ·260 | 8931 8706 | ·25 | 1835 |
| •340 •380 | 9040 | 1.00 | 1786 | -380 -420 | 8795 8987 | 1.00 | 1866 | • 340 • 380 | 8162 8382 | 1.00 | 1844 | ·340 ·380 | 9041 | 1.00 | 1717 |
| - 420 - 460 - 500 | 9236 9273 8953 | 1.25 | 1357 | - 460 - 500 | 9080 9235 9058 | 1.25 1.50 1.75 | 1041 | · 420 | 8510 | 1.25 | 1388 | - 420 - 460 | 9121 | 1.25 | 1347 |
| • 540 • 580 | 9060 | 2.00 | 0811 0656 0523 | • 540 • 580 | 9213 9631 | 2.00 | 0648 0515 | • 500 • 540 | 8661 | 2.00 | 0733 0622 | -500 -540 -580 | 8611 7637 6552 | 2.00 | 0755 0634 0539 |
| · 620 | 8150 | 2.50 | 0505 | ·628 | 9811 5082 | 2.50 | 0516 0482 | • 580 • 620 | 9236 | 2.25 | 0516 0516 | ·620 | 6409 | 2.25 2.50 2.75 | 0479 |
| -800 | 2815 | 3.50 | 0429 | .800 .900 | 2563 0868 | 3.50 | 0442 | .700 .800 | 4409 2823 1908 | 2.75 3.50 -5.25 | 0516 0472 0053 | .800 | 2884 | 3.50 | 0363 |
| .950 .975 | ·0227 | -4-50 | 0020 | .950 .975 | 0030 -0288 | -4.50 -3.75 | 00 40 | .950 .975 | 1403 | -4.50 -3.75 | 0032 | .950 | .0287 | -4.50 -3.75 | 0030 |
| 1.000 | .0865 1.1567 | -3.00 | .0125 | 1.000 | .0581 1.1597 | -3.00 | .0140 .0176 | 1.000 | 0765 1.1559 | -3.00 | .0212 | 1.000 | .0879 | -3.00 | .0094 |
| .004 | .2724 | -1.50 | .0332 .0377 | .004 .008 | -2457 0012 | -1.50 | .0325 .0384 | .004 .008 | ·1741 0832 | -1.50 | .0332 .0380 | .004 | .2830 | -1.50 | .0293 .0313 |
| .020 .050 | 0418 | -1.00 | .0427 .0483 | -020 -050 | - · Ø593 - ØØ46 | -1.00 | .0412 | ·020 | 1295 0285 | -1.00 | .0449 .0452 | .020 | 0335 | -1.00 | .0403 .0409 |
| • 100 • 150 | 1077 | 50 | .0511 .0484 | -100 -150 | 1138 2277 | 50 | .0450 .0441 | •100 •150 | 1459 | 50 | .0447 .0363 | -100 -150 | 1010 | 50 | .0469 |
| ·200 | 3264 | .25 | .0475 .0371 | ·200 | 3369 | .25 | .0344 | ·200 | - · 3856 - · 5278 | .00 .25 | .0278 .0176 | ·200 | 3155 | .00 | .0459 |
| · 350 · 450 | 4290 | · 50 | .0381 .0432 | • 350 • 450 | - · 4505 - · 2731 | • 50 • 75 | .0335 .0350 | •35Ø •45Ø | - · 6885 - · 3107 | ·50 | .0161 .0175 | ·350 ·450 | 4161 | • 50 • 75 | .0375 .0398 |
| • 55 0 • 65 0 | 0907 -0810 | 1.00 | .0412 | •550 •650 | 0989 -0745 | 1.00 | .0414 .0382 | • 550 • 650 | - • 1217 • 0514 | 1.00 | .0220 .0276 | •550 •650 | 0895 -0794 | 1.00 | .0430 .0403 |
| •750 •850 | ·2321 | 1.50 | .0303 | • 750 • 850 | ·2273 | 1.75 | .0307 .0223 | • 750 • 850 | ·2077 | 1.50 | •0231 •0188 | .750 .850 | .2297 | 1.75 | .0289 .0254 |
| 1.000 | • 0865 | 2.25 | ·0142 | 1-000 | .0581 | 2.25 | - 0088 | 1.000 | 0765 | 2.00 | -0078 0124 | 1.000 | .0879 | 2.25 | -0173 |
| | | 2.75 | 0037 -0017 | | | 2.50 2.75 3.50 | 0057 -0001 -0087 | | | 2.75 | 0059 0012 | | | 2.50 2.75 3.50 | 00 48 - 0001 |
| | | 3 • 50 | .0072 | | | | | | | | | | | | |
| NR. | MACH | 3 • 50 E- 6 • RE | -0072 | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | 3 • 50 E- 6 • RE | •0077 | NR. | MACH | E- 6*RE | -0038 |
| NR. 2525 | MACH • 760 | | | NR. 2526 | MACH •760 | | | NR • 2527 | MACH •760 | | | NR. 2528 | MACH •759 | | |
| 2525 X/L | .76 0 CP | E-6*RE 4.09 XW/L | ALPHA 2.00 | 2526 X/L | -760 CP | E- 6*RE 5•03 XW/L | ALPHA 2.00 | 2527 X/L | .760 CP | E- 6*RE 5.94 XW/L | ALPHA 2.00 CPV | 2528 X/L | •759 CP | E-6*RE 13.49 XV/L | ALPHA 2.00 |
| 2525 X/L .000 .004 | .760 CP 1.1506 .5176 | E-6*RE 4.09 XW/L -5.25 -4.50 | ALPHA 2.00 CPW01020027 | 2526 X/L •000 •004 | .760 CP 1.1497 .5074 | E- 6+RE 5-03 XV/L -5-25 | ALPHA 2.00 CPW 0084 0015 | 2527 X/L .000 .004 | .760 CP 1.1524 .5132 | E-6*RE 5.94 XW/L -5.25 -4.50 | ALPHA 2.00 CPW 0098 0045 | 2528 X/L .000 | .759 CP 1.1550 .5193 | E-6*RE 13.49 XV/L -5.25 -4.50 | AL PHA 2.00 CPW 0084 |
| 2525 X/L .000 .004 .008 .015 | .760 CP 1.1506 .5176 .2091 0702 | E-6*RE 4.09 XW/L -5.25 -4.50 -3.75 -3.00 | ALPHA 2.00 CPW01020027 .0021 .00866 | 2526 X/L .000 .004 .008 | .760 CP 1.1497 .5074 .2056 | E- 6*RE 5.03 XW/L -5.25 -4.50 -3.75 -3.79 | ALPHA 2.00 CPW00840015 .0003 | 2527 X/L .000 .004 .008 .015 | .760 CP 1.1524 .5132 .2072 0732 | E- 6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 | ALPHA 2.00 CPW00980045 .0045 | 2528 X/L .000 .004 .008 .015 | .759 CP 1.1550 .5193 .2235 0366 | E-6*RE 13.49 XV/L -5.25 -4.50 -3.75 -3.00 | AL PHA 2.00 CPW008400470047 |
| 2525 X/L .000 .004 .008 .015 .025 | .760 CP 1.1506 .5176 .2091 0702 3153 5691 | E-6*RE 4.09 X\(\frac{1}{2}\). -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | ALPHA 2.00 CPW01020027 .0021 .0086 .0160 | 2526 X/L .000 .004 .008 .015 .025 | .760 CP 1.1497 .5074 .2056 0791 3227 5602 | E- 6*RE 5.03 XW/L -5.25 -4.50 -3.75 -3.76 -2.25 | ALPHA 2.00 CPW008A0015 .0003 .0065 .0131 | 2527 X/L .000 .004 .008 .015 .025 | .760 CP 1.1524 .5132 .2072 -0732 -3135 -5501 | E- 6*RE 5.94 XW/L - 5.25 - 4.50 - 3.75 - 3.00 - 2.25 - 1.50 | ALPHA 2.00 CPW0098004401120161 | 2528 X/L .000 .004 .008 .015 .025 | .759 CP 1.1550 .5193 .2235036628035309 | E-6*RE 13.49 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 | AL PHA 2.00 CPW00840047 .0103 .0149 .0158 |
| 2525 X/L .000 .004 .008 .015 .025 .040 .060 .080 | .760 CP 1.1506 .5176 .2091 0702 3153 5691 7521 8654 | E-6+RE 4.09 XW/L -5.25 -4.50 -3.75 -3.00 -1.50 -1.50 | ALPHA 2.00 CPW01020021 .00856 .0160 .0117 .0059 | 2526 X/L .000 .004 .008 .015 | .760 CP 1.1497 .5074 .2056 0791 | E-6+RE 5-03 XV/L -5-25 -4-50 -3-75 -3-76 -1-50 -1-25 | AL PHA 2.00 CPW00840015 .0003 .0065 .0131 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 | .760 CP 1.1524 .5132 .2072 -0732 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 | ALPHA 2.00 CPW00980045 .0044 .0112 .0168 .0116 .0018 | 2528 X/L .000 .014 .008 .015 .025 .040 .060 | .759 CP 1.1550 .5193 .2235 .0366 .2803 .5309 .7227 .8879 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | ALPHA 2.00 CPW00640047 .0103 .01490158 .0149 .0078 |
| 2525 X/L .000 .004 .008 .015 .025 .040 .060 .100 | .760 CP 1.1506 .5176 .2091 0702 3153 5691 7521 | E-6+RE 4.09 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 | ALPHA 2.00 CPW01020021 .0056 .0160 .0117 .00590133 | 2526 X/L .000 .004 .005 .015 .025 .040 .060 .080 .100 .140 .180 | .760 CP 1.1497 .5074 .2056 .0791 -3227 -7528 -8581 -1.0110 -1.0987 | E-6+RE 5-03 XW/L -5-25 -4-50 -3-75 -3-76 -1-25 -1-25 -1-25 50 25 | ALPHA 2.00 CPW00840015 .0065 .0131 .0167 .015701310136 | 2527 X/L .000 .004 .015 .025 .040 .063 .080 .100 .140 | .760 CP 1.1524 .5132 .2072 .0732 -3135 -5501 -7416 -8860 -1.0101 -1.0939 -1.0864 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.70 -2.25 -1.507550 | ALPHA 2.00 CPW00980045 .00440161 .0168 .0113018401794 | 2528 X/L .000 .004 .008 .015 .025 .040 | .759 CP 1.1550 .5193 .2235 0366 2803 5309 7227 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 -7.5 | ALPHA 2.00 CPW00840047 .010301490158014900740094 |
| 2525 X/L .000 .004 .004 .015 .025 .040 .060 .100 .140 .180 .220 | .760 CP 1.1506 .5176 .2091 0702 3153 5691 7521 8654 -1.0113 -1.0943 -1.1197 | E-6+RE 4.09 XW/L -5.25 -4.50 -3.75 -1.50 -1.25 -1.00 -75 | ALPHA 2.00 CPW01020027 .0021 .0086 .0160 .0117 .00590133 | 2526 X/L .000 .004 .008 .015 .025 .040 .060 .140 .180 .226 | .768 CP 1.1497 .5074 .205607913227560275288581 -1.0110 -1.0987 -1.09925 -1.0894 | E-6+RE 5-03 XW/L -5-25-4-50 -3-70 -2-25-1-50 -1-2550 -2500 -2500 | AL PHA 2.00 CPW00840015 .0003 .0065 .0131 .016701310368068316632625 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .140 .180 .220 | .760 CP 1.1524 .5132 .2072 -0732 -3135 -5501 -7416 -8860 -1.0101 -1.0939 -1.0864 -1.1156 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.70 -2.25 -1.50 -1.25 -1.60 -2.5 | ALPHA 2.00 CPW00980045004401610161016801130364079415952663 | 2528 X/L .000 .004 .008 .015 .025 .040 .060 .080 .100 | .759 CP 1.1550 .5193 .2235 .0366 .2803 .5309 .7227 .8879 -1.0119 -1.0984 -1.1319 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.25 -1.00 | ALPHA 2.00 CPW00840047 .010301490158014900740094 |
| 2525 X/L .000 .004 .004 .015 .025 .040 .060 .140 .180 .260 .300 | .768 CP 1.150651762091070231535691752186541.091431.09431.109431.109431.114291.1429. | E-6+RE 4.09 XV/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -1.25 -0.00 -2.50 -0.50 -0.50 | AL PHA 2.00 CPW01020027 .0021 .0081 .0160 .0160 .0160 .0160 .016108131566260931742260 | 2526 X/L -000 -004 -008 -015 -025 -040 -060 -060 -140 -180 -220 -260 -340 | .768 CP 1.1497 .5074 .2056 -0791 -3227 -5602 -5528 -6581 -1.0110 -1.0110 -1.1474 -1.1474 | E-6+RE 5.03 XW/L -5.25 -4.50 -3.00 -2.25 -1.50 -1.55 -0.00 -2.55 -0.00 -2.55 -5.00 -2.55 -5.00 | AL PHA 2.00 CPW00840015 .0003 .0065 .0131 .0167 .0126 .0057013103061603 .26253226 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .160 .140 .180 .220 .260 .300 | .760 CP 1.1524 .5132 .2072 0732 3135 5501 7416 8860 -1.0101 1. | E-6*RE 5.94 X\(\frac{1}{2}\)/ | ALPHA 2.00 CPW00980045004501610166011301680113015007941595266332992326 | 2528 X/L .000 .004 .008 .015 .025 .040 .060 .140 .120 .220 .260 .300 | .759 CP 1.1550 .5193 .2235 -0366 -2803 -5309 -7227 -8879 -1.0119 -1.0905 -1.1319 -1.1319 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.00 -2.55 -3.00 -2.55 -5.00 -2.55 -5.00 | AL PHA 2.00 CPW008400470103014901580149003107871572270334342389 |
| 2525 X/L .000 .004 .008 .015 .025 .040 .060 .140 .140 .180 .260 .340 .340 .340 .340 | .768 CP 1-1586 .5176 .2091 -0702 -3153 -5691 -7521 -8654 -1-0113 -1-0943 -1-1943 -1-11429 -1-1389 -1-1385 | E-6+RE 4.09 X \(\sqrt{1}\) -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.50 -2.55 -5.50 -0.00 -1.50 | ALPHA 2.08 CPW010200270021 .008601600160016001600160017017017017 | 2526 X./L .000 .004 .008 .015 .025 .040 .080 .110 .140 .220 .240 .340 .340 .340 | .768 CP 1.1497 .5874 .2856 -0791 -3227 -55685581 1.0110 -1.9987 -1.9925 -1.1171 -1.1474 -1.1428 -1.1428 | E-6+RE 5.03 XW/L -5.25 -4.50 -3.75 -3.99 -1.25 -1.90 -2.75 -5.50 -2.55 -5.00 -7.75 -7.70 | ALPHA 2.00 CPW00840015 .0005 .0131 .0167 .0126 .00570131 .03061063 .2625322623452298 | 2527 X/L -000 -004 -008 -015 -025 -040 -060 -140 -120 -220 -260 -340 -380 -420 | .760 CP 1.1524 .5132 .2072 -0.733 5501 7416 8660 -1.0101 -1.093 -1.094 -1.1156 -1.1465 -1.1465 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 -1.25 -1.00 -2.25 -1.00 -2.55 -1.00 -2.55 -1.00 -2.55 -1.00 | ALPHA 2.00 CPW009800450045004601160166011303640794159526633299232623251780 | 2528 X/L .0004 .004 .008 .015 .025 .040 .080 .140 .180 .220 .260 .340 .380 | .759 CP 1.1550 .5193 .2235 -0366 -2803 -5509 -7227 -8879 -1.0119 -1.0983 -1.0905 -1.01319 -1.1319 -1.1319 -1.1342 -1.1342 | E-6*RE 13.49 XV/L -5.25 -4.50 -3.00 -2.25 -1.50 -1.25 -1.00 -75 -50 -0.25 -75 -75 -75 -75 -75 -75 -75 -75 -75 -7 | AL PHA 2.00 CPW0084004701030149015801490031078715722783343423892389 |
| 2525 X/L .000 .004 .008 .015 .040 .0680 .1140 .180 .220 .260 .340 .340 .340 .420 .460 | .768 CP 1.1506 .5176 .2091 -0702 -3153569175218654 -1.0113 -1.0943 -1.197 -1.1389 -1.1389 -1.1389 | E-6+RE 4.09 X \(\sigma \) / L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.55 -5.00 -2.55 -1.50 -2.55 -1.50 -1.50 -1.50 -1.50 -1.50 | AL PHA 2.08 CPW01020021 .0081 .0160 .0160 .0160 .01600174 .02500174 .02500174 .02500174 .02500174 .02500174 .02500174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .02600174 .0260 | 2526 X/L .000 .004 .008 .015 .025 .040 .160 .180 .220 .260 .340 .340 .340 .340 .350 | .768 CP 1.1497 -5074 -2056 -0791 -3227 -5602 -7528 -10110 -1.0987 -1.09925 -1.1171 -1.1448 -1.1448 -1.1537 -1.1713 | E-6+RE 5-03 XW/L -5-25 -4-50 -3-75 -3-60 -1-25 -1-20 -2-25 -1-00 -2-51 -00 -2-51 -00 -1-50 -1-50 -1-50 | ALPHA 2.00 CPW0084001500650013016701310130160316032285229817671099 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .100 .140 .180 .220 .266 .360 .360 .420 .460 | .760 CP 1.1524 .5132 .2072 .0732 .3135 .5591 .7416 .8660 1.0019 1.0939 1.0864 1.1095 -1.1465 -1.1465 -1.1467 -1.1467 -1.1679 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -2.25 -1.00 -2.50 -1.50 -1.50 -1.50 -1.50 | ALPHA 2.00 CPW009800440112016101680113036407941595266332992326178012590975 | 2528 X./L .000 .004 .008 .015 .025 .0460 .083 .1100 .120 .220 .220 .340 .340 .340 .340 .420 .460 | .759 CP 1.1550 .5193 .2235 -0366 2863 5389 7227 8679 -1.0119 -1.0905 -1.0905 -1.1342 -1.1480 -1.1342 -1.1480 -1.1480 -1.1480 -1.1480 -1.1480 -1.1480 -1.1480 | E-6*RE 13.49 XV/L -5.25 -4.50 -3.75 -3.80 -2.25 -1.50 -1.25 -1.60 -2.55 -1.60 -2.55 -1.60 -1.50 -1.50 | ALPHA 2.00 CPW0084004701030149033107870094033107872703343423892392177913230974 |
| 2525 X/L .000 .004 .008 .015 .015 .040 .080 .140 .180 .220 .260 .340 .340 .380 .340 .380 .420 .580 | .768 CP 1.1506 .5176 .2091 -0702 -3153 -5691 -7521 -8654 -1.0113 -1.0907 -1.1494 -1.1389 -1.1484 -1.1655 -1.1484 -1.1655 -1.1485 -1.0142 | E-6+RE 4-09 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -1.50 -2.5 -2.50 -2 | AL PHA 2.08 CPW01020021 .00821 .0086 .0160 .0160 .0160 .016002600174226022602262173312840875088120875 | 2526 X/L .000 .004 .008 .015 .025 .049 .060 .140 .180 .220 .260 .340 .340 .350 .420 .420 .420 .540 | .760 CP 1.1497 .5074 .2056 6-079 -3227 -5602 -7528 -7528 -10110 -1.0987 -1.0987 -1.1171 -1.1474 -1.1448 -1.1537 -1.1713 -1.1536 -1.1586 -1.1586 | E-6+RE 5-03 XW/L -5-25 -4-50 -3-75 -3-70 -2-25 -1-20 -2-55 -25 -25 -25 -25 -25 -25 -25 -25 - | ALPHA 2.00 CPW008400150083005701310166083016632245224522461767129004410748 | 2527 X/L .000 .004 .008 .015 .025 .049 .140 .180 .220 .260 .300 .340 .350 .420 .560 | .760 CP 1.1524 .5132 .2072 .0732 .3135 .5591 .7416 .8860 -1.0101 1.0939 1.0864 4.1.1465 -1.1465 -1.1465 -1.1467 -1.1679 -1.1679 -1.1679 -1.1679 -1.1679 -1.1679 -1.1679 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.50 -2.50 -7.51 -0.00 -7.51 -7.50 | ALPHA 2.00 CPW00980044011201610168011303640794159526633299232623251780178010750624 | 2528 X/L .000 .004 .008 .015 .025 .046 .089 .140 .180 .220 .260 .340 .340 .340 .356 .420 .550 | .759 CP 1.1550 .5193 .2235 -0366 2803 5389 7227 8879 -1.0119 -1.0905 -1.0905 -1.1319 - | E-6*RE 13.49 X\U/L -5.25 -4.50 -3.75 -3.00 -1.25 -1.2 | ALPHA 2.00 CPW0084004701030149015801490331078727032389239217791323097407870695 |
| 2525 X/L .000 .004 .008 .015 .015 .040 .180 .180 .180 .260 .300 .340 .420 .460 .580 .580 .580 .580 .580 .580 .580 .58 | .768 CP 1.1506 .5176 .2091 -0702 -3153 -5691 -7521 -8654 -1.0113 -1.0943 -1.10943 -1.11389 -1.1389 -1.1484 -1.1638 -1.1638 -1.1638 -1.0943 | E-6+RE 4-09 X W /L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.50 -7.55 1.50 1.50 1.50 1.50 2.25 2.50 2.25 2.50 | AL PHA 2.08 CPW01020027002100860160 | 2526 X/L -000 -004 -015 -025 -040 -060 -140 -180 -180 -220 -340 -380 -460 -590 -580 -580 -580 | .768 CP 1.1497 -50874 -20566 -0791 -3227 -5602 -7528 -8581 -1.09187 -1.0925 -1.1092 -1.1171 -1.1448 -1.1537 -1.1537 -1.1536 -1.1537 -1.1573 -1.1586 -57780 -5780 | E-6*RE 5.03 XW/L -5.25 -4.50 -3.75 -3.75 -1.80 -2.25 -1.80 -7.50 -2.50 | AL PHA 2.00 CPW0084001500830065013101670131016608301603224623452246234524641073806730673 | 2527 X/L .000 .004 .008 .015 .025 .049 .066 .140 .180 .220 .260 .380 .340 .3580 .420 .466 .500 .500 | .760 CP 1.1524 .5132 .2072 .01732 .3135 .5591 .7416 8860 -1.0101 -1.0939 -1.0664 -1.1405 -1.1406 -1. | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -7.50 -2.50 -1.00 -7.50 -1.00 -7.50 -2.50 | ALPHA 2.00 CPW00980044011201610168011303640794159526633299232617801259232517801259097506940694 | 2528 X/L .000 .004 .008 .015 .025 .040 .088 .140 .180 .220 .260 .340 .340 .350 .420 .560 .580 .700 | .759 CP 1.1550 .5193 .2235 .0366 -2803 -5309 -725 -8879 -1.0119 -1.0905 -1.1906 -1.1480 -1.1480 -1.1642 -1.1763 -1.176 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -1.25 -1.00 -7.50 -2.25 -1.00 -7.50 -1.25 -1.00 -7.50 -2.25 -1.00 -7.50 -2.25 -2.00 -7.50 -2.25 -2.00 -7.50 -2.25 -2.00 -7.50 -2.25 -2.00 -7.50 -2.25 -2.00 -7.50 -2.25 | AL PHA 2.00 CPW00840047 .0103 .0149 .0158 .0149 .0331078715722703343423891779132407871974078707870787078707870787078707870640 |
| 2525 X/L .000 .0004 .0015 .0125 .040 .100 .100 .100 .100 .100 .100 .100 | .768 CP 1.1506 .5176 .2091 -0702 -3153 -5691 -7521 -86513 -1.0913 -1.0943 -1.1197 -1.1389 -1.1197 -1.1389 -1.11484 -1.1638 -1.1638 -1.1638 -1.1638 -1.1638 -1.1638 -1.1638 | E-6+RE 4-09 X W /L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.50 -5.25 -5.00 -7.50 -2.50 -7.50 -2.50 -7.50 -2.50 -7.50 -7.50 -7.50 -7.50 -7.50 -7.50 -7.50 -7.50 -7.50 -7.50 | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0160 -0117 -0059 -0137 -0813 -1566 -2260 -2252 -1733 -1264 -0815 -2675 -0623 -0655 -0456 | 2526 X/L -000 -004 -015 -025 -040 -060 -060 -180 -180 -180 -220 -340 -380 -460 -580 -580 -580 -680 | .760 CP 1.1497 -5074 -2056 -0791 -3227 -5500 -1.0910 -1.0910 -1.0110 - | E-6*RE 5.03 X \(\frac{7}{2} \) -5.25 -4.50 -3.75 -3.75 -1.25 -1.25 -1.25 -25 -25 -25 -25 -25 -25 -25 -25 -25 - | AL PHA 2.00 CPW00840015 .0003 .0065 .0131 .0167 .0136 .0657 .32262298 .1767298 .1767298176729817672995 .0841073 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .140 .180 .220 .246 .380 .450 .580 .580 .580 .780 .880 | .760 CP 1.1524 .5132 .2072 -0732 -3135 -5501 -7416 -8600 1-1.0939 -1.0664 -1.1055 -1.1409 -1.1439 -1.1655 -1.1490 -1.1655 -1.1997 -7997 -6161 -4784 -3396 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -2.25 -1.00 -2.25 -1.00 -2.25 -1.00 -2.25 | ALPHA 2.00 CPU009800440112016101680113036407941595266332992326178012592325178009750975097509750975097509750975097509824069406920478 | 2528 X/L .000 .004 .008 .015 .025 .049 .066 .089 .140 .180 .220 .260 .340 .380 .420 .420 .460 .500 .500 .500 .500 .500 .500 | .759 CP 1.1550 .5193 .2235 .0366 .2803 .5309 .7227 .8879 -1.0119 .10905 -1.10905 -1.1480 -1.1480 -1.1763 -1.1763 -1.1763 -1.1763 -1.1763 -1.2077 -2965 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.25 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.60 -2.55 -1.50 -2.50 | AL PHA 2.00 CPW00840047 .0103 .0149 .0158 .0149 .033107872703270323891579132309740397132309770695065470513 |
| 2525 X/L .000 .004 .008 .015 .025 .040 .140 .120 .260 .340 .340 .340 .460 .540 .540 .540 .540 .540 .540 .540 .54 | .768 CP 1.1506 .5176 .2091 -0702 -3153 -5691 -7521 -8654 -1.0113 -1.0943 -1.19947 -1.1389 -1.1197 -1.1389 -1.1197 -1.1389 -1.1197 -1.1389 -1.1484 -1.1638 -5487 -1.0943 | E-6+RE 4.09 X W -5.25 -3.05 -3.05 -1.26 -1.26 -1.26 -2.25 -1.26 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -2.25 -3.75 -3.75 -3.75 | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0160 -0117 -0059 -0137 -0813 -1566 -2260 -2252 -1733 -1264 -0815 -0675 -0623 -0555 -0456 -0025 | 2526 X/L -000 -004 -015 -025 -040 -060 -060 -100 -140 -1220 -260 -340 -380 -420 -460 -540 -540 -540 -540 -570 -670 -670 -670 -670 -670 -670 -670 -6 | .760 CP 1.1497 -5074 -2056 -0791 -3227 -5602 -7528 -6581 -1.0110 | E-6*RE 5.03 X \(\sigma \) | AL PHA 2.06 CPW08840615 .0803 .0865 .0131 .0167 .0126 .08570131 .0167 .0126 .08570131 .0167 .0126 .0859 .1630 .2298 .1767 .2913 .2945 .2945 .3266 .3345 .2988 .1767 .3268 .3459 .3689 .3689 .3689 .3689 .3689 .3689 | 2527 X/L .000 .008 .015 .025 .040 .060 .100 .140 .180 .220 .340 .350 .350 .350 .350 .350 .350 .350 .35 | .760 CP 1.1524 .5132 .2672 .0732 .3135 .5591 .7416 .8860 .1.0101 .1.01 | E-6*RE 5.94 X\ \(\Lambda \) | ALPHA 2.00 CPW00980045 .0044 .0112 .0161 .0168 .01130364079415952663329923262325178021892189097409940684068406840684 | 2528 X/L .000 .004 .008 .015 .025 .049 .060 .088 .180 .220 .140 .180 .220 .340 .380 .400 .560 .560 .560 .560 .560 .975 | .759 CP 1.1550 .5193 .2235 -0.366 -2.2863 -5.369 -7.227 -8.879 -1.0119 -1.0199 -1.0199 -1.0199 -1.1319 -1.1319 -1.1342 -1.1446 -1.1642 -1.1763 -1.1646 -1.1842 -1.1763 -1.1846 -1.1848 -1.1848 -1.1848 -1.1848 -1.1848 -1.1848 -1.1848 -1.1848 -1.1848 -1.1848 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.50 -2.25 -1.50 -2.25 -1.50 -2.25 -1.50 -2.25 -1.50 -2.25 -1.50 -2.25 -2.50 -2.25 -2.35 -2.35 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 | AL PHA 2.00 CPW00840047 .0103 .01149 .0158 .0149 .0078009342703270327434238923921779239217791323097406950694051300330033 |
| 2525 X/L .000 .004 .0015 .025 .040 .080 .140 .180 .220 .260 .340 .340 .460 .540 .540 .540 .540 .540 .540 .540 .54 | .768 CP 1.1586 .5176 .2091 -0702 -3153 -5691 -7521 -8654 -1.0113 -1.0943 -1.1149 -1.1389 -1.1389 -1.1484 -1.1638 -1.11638 -1.11638 -1.16484 -1.16586 -1.16687 -1.2688 -2888 -2181 -1.1667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 -1.12667 | E-6+RE 4.09 X W -5.25 -4.575 -3.06 -2.25 -1.26 -2.25 | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0 | 2526 X/L -000 -004 -015 -025 -040 -060 -080 -140 -180 -220 -240 -340 -380 -420 -460 -540 -540 -540 -540 -550 -550 -550 -55 | .760 CP 1.1497 .5074 .205607913227560275288581 -1.0110 -1.0925 -1.0894 -1.1171 -1.1448 -1.1537 -1.1684 -1.1537 -1.1713 -1.1684578046603193032207341092 | E-6*RE 5.03 XW/L -5.25 -4.50 -3.75 -1.25 - | ALPHA 2.00 CPW00840015 .0003 .0005 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 . | 2527 X/L .000 .004 .008 .015 .025 .049 .060 .100 .220 .260 .340 .360 .360 .540 .560 .560 .560 .560 .560 .560 .560 .56 | .760 CP 1.1524 .5132 .2072 -0732 -3135 -5501 -7416 -8860 -1.0101 -1.01 | E-6*RE 5.94 XW/L -5.25 -3.475 -3.475 -3.475 -1.00 -2.25 -1.00 -5.25 -5.00 -7.52 -5.00 -7.53 -7.50 -7. | ALPHA 2.00 CPW00980044011201610168011303640794159526632325178023251780232517802325178023251780232517802325 | 2528 X/L .000 .004 .008 .015 .025 .049 .060 .030 .140 .120 .220 .340 .340 .340 .350 .420 .450 .560 .560 .570 .600 .570 .600 .700 .600 .700 .600 .700 .600 .700 .600 .700 .600 | .759 CP 1.1550 .5193 .2235 -0.366 -2.2863 -5.309 -7.227 -8.879 -1.0119 -1.0908 -1.0908 -1.1319 -1.1319 -1.1319 -1.1342 -1.1446 -1.1446 -1.1642 -1.1763 -1.12677 -1.2357 -2.965 -1.0448 -0.0444 -0.086 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -2.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -2. | AL PHA 2.00 CPW00840047 .0103 .01149 .0158 .0149 .007800980331078727032389137723891323007800640054706595066400547069506640054706950640054706950640054706950640054706950640 |
| 2525 X/L | .768 CP 1-1596 -5176 -2991 -0702 -07153 -5691 -7521 -8654 -1.0113 -1.0997 -1.1429 -1.1389 -1.1389 -1.1389 -1.1389 -1.1429 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 -1.1389 | E-6+RE 4.09 X W /L -5.25 -4.50 -3.75 -3.00 -2.25 -1.26 -2.25 -1.25 | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0160 -0167 -0813 -1566 -2089 -3174 -2260 -2252 -1733 -1264 -0987 -0812 -0655 -0455 -08093 -016443 -0876 | 2526 X/L | .768 CP 1.1497 -5074 -2056 -0791 -3227 -5602 -7528 -8581 -1.0110 -1.0987 -1.0987 -1.0987 -1.171 -1.1474 -1.1448 -1.1537 -1.1713 -1.1713 -1.1713 -1.1586 -37780 -3363 -1.322 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 -1.092 | E-6*RE 5.03 X \(\frac{1}{2} \) -5.25 -1.50 -1.25 -1.00 -2.50 -2. | AL PHA 2.00 CPW00840015 .0003 .0065 .0131 .0167 .0136 .0830 .1603 .2625 .2298 .17671296 .2046 .2145 .2964 .2145 .2964 .2145 .2964 .2145 .2964 .2145 .2964 .2145 .2964 .2145 .2964 .2145 .2964 .2164 .2164 .2164 .2164 .2164 .2164 .2165 .2265 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .140 .180 .220 .260 .380 .340 .340 .560 .560 .560 .700 .800 .900 .900 .910 | .760 CP 1.1524 .5132 .2072 .8735 .5581 .7416 .8660 .10101 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -3.60 -2.25 -1.06 -2.50 -1.25 -1.06 -2.50 -2.50 -2.50 -3.75 -3.00 -2.50 -3.75 -3.00 -2.50 -3.75 -3.00 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 -3.75 | ALPHA 2.00 CPW -0098 -0045 -0045 -0161 -0161 -0168 -0113 -0364 -0794 -1595 -2663 -3299 -2326 -1780 -1259 -0975 -0662 -0478 -0602 -0458 -0602 -0458 -0602 -0458 -0602 | 2528 X/L .000 .004 .008 .015 .025 .040 .080 .1100 .1200 .1300 .220 .200 .340 | .759 CP 1.1550 .5193 .2235 -0.366 -2.2893 -5.309 -7.227 -8.879 -1.0119 -1.0983 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 -1.1396 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -1.25 -1.00 -2.50 -1.00 -2.50 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.00 -3.75 -3.150 -3.75 -3.150 -3.150 -3.150 -3.150 -3.150 -3.150 | AL PHA 2.00 CPW00840047 .0103 .01149 .0158 .01149 .00784033107872783238913792392177917930695064006310633063306330633063306380638 |
| 2525 X/L .000 .0048 .015 .025 .0460 .1800 .1400 .1290 .2600 .3800 .3800 .3800 .5460 .5600 .580 | .768 CP 1.1586.5176.2091876591752186541.914291.13891.13891.14291.13891.146385487466732888218116638218121 | E-6+RE 4.09 X \(\sqrt{1}\) -5.25 -3.69 -2.25 -1.50 -2.25 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -2.50 -2.55 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.60 -3.75 -3.75 | ALPHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0160 -0113 -0156 -0160 -0160 -017 -0150 -017 -017 -017 -017 -017 -017 -017 -01 | 2526 X/L -000 -004 -008 -015 -025 -040 -060 -180 -180 -220 -340 -380 -220 -340 -380 -220 -360 -390 -580 -590 -580 -590 -580 -620 -700 -900 -900 -900 -900 -900 -900 -90 | .768 CP 1.1497 -5874 -2856 -8791 -3227 -5682 -7528 -8581 -1.0118 -1.0925 -1.0925 -1.1171 -1.1448 -1.1537 -1.1537 -1.1586 -3758 -35780 -3363 -1322 -3788 -3680 -3363 -12830 -12830 -14937 -58344 -3680 | E-6*RE 5.03 X \ \(\lambda \) \ | AL PHA 2.00 CPW00840015 .0003 .0065 .0131 .0167 .0131 .0306 .1603 .2625 .3226 .2245 .2245 .2246 .2345 .2467 .3266 .2345 .2467 .3266 .2345 .2468 .0673 .0673 .0673 .0673 .0699 .0812 .0882 .0155 .0296 .0863 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .140 .180 .220 .246 .380 .450 .590 .540 .580 .580 .975 .780 .000 .000 .000 .000 .000 .000 .000 | .760 CP 1.1524 .5132 .2072 .3135 .5591 .7416 .8660 .10101 | E-6*RE 5.94 XW/L -5.25 -4.50 -3.75 -1.25 -1.25 -1.25 -1.25 -1.25 -1.25 -2.25 -2.25 -2.25 -3.35 -2.25 -3.35 | ALPHA 2.00 CPW -0098 -0045 -0045 -0161 -0168 -0113 -0364 -0794 -1595 -2663 -3299 -2325 -1780 -1259 -2463 -0755 -0664 -0692 -0478 -0694 -0692 -0478 -0692 | 2528 X/L .000 .004 .008 .015 .025 .049 .060 .100 .1100 .1220 .226 .260 .340 .340 .350 .420 .450 .500 .500 .500 .500 .500 .500 .50 | .759 CP 1.1550 .5193 .2235 .0366 .2803 .5309 .7227 .8879 1.0119 1.0905 1.0908 1.1319 1.1319 1.1314 1.1314 1.1313 1.1480 1.1642 1.1763 1.2057 .8851 .5007 .2965 .1308 .0448 .0448 .0846 .01550 | E-6*RE 13.49 X\ \/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\ | AL PHA 2 - 000 CPW - 000 84 - 000 47 - 001 03 - 01 149 - 01 159 - 01 157 - 1572 - 27034 - 2389 - 1779 - 1779 - 1779 - 1797 - 1797 - 1797 - 0695 - 0640 - 06513 - 0094 - 0157 - 0640 - 05513 - 0094 - 0157 - 0640 - 05513 - 0094 - 0157 - 0432 - 06633 - 0663 |
| 2 5 2 5 X / L | .768 CP 1.1506.5176.20910702315356917521865419641964196419641968 | E-6+RE 4.09 X W /L -5.25 -4.50 -3.75 -1.00 -2.25 -1.00 -2.50 -7.50 -2.50 -7.50 -2.50 -7.50 -2.50 -7.50 -2.50 -7.50 | AL PHA 2.08 CPW -0102 -0027 -0021 -0086 -0160 -0160 -0160 -017 -017 -017 -017 -017 -017 -017 -01 | 2526 X/L -000 -004 -008 -015 -025 -040 -060 -080 -180 -180 -180 -220 -340 -380 -400 -580 -580 -580 -580 -580 -580 -680 -955 -700 -680 -955 -700 -680 -955 -700 -705 -700 -700 -700 -700 -700 -7 | .760 CP 1.1497 -5874 -2856 -6791 -3227 -5580 -5581 -1.8987 -1.9925 -1.1171 -1.1448 -1.1537 -1.1684 -1.1173 -1.1684 -1.1537 -1.1713 -1.1684 -1.1537 -1.1713 -1.1684 -1.1537 -1.1713 -1.1684 -1.1537 -1.1713 -1.1583 | E-6*RE 5.03 X\V_L -5.25 -4.50 -3.75 -3.76 -1.25 -1.20 -2.25 -1.20 -2.25 -1.20 -2.25 | AL PHA 2.06 CPW08840615 .0803 .0805 .0131 .0167 .0126 .0857 .0131 .0396 .1603 .2228 .1767 .2938 .1767 .2948 .1767 .2995 .3826 .2948 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .1767 .2998 .3859 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .140 .180 .220 .340 .380 .450 .580 .580 .580 .780 .880 .975 .100 .004 .004 .006 .007 .007 .007 .007 .007 .007 .007 | .760 CP 1.1524 .5132 .2072 .0732 .3135 .5591 .7416 .8860 -1.0191 -1.0939 -1.0864 -1.1055 -1.1469 -1.1439 -1.1655 -1.1469 -1.1439 -1.1679 -1.1655 -1.1490 -1.1655 -1.1490 -1.1655 -1.1490 -1.1655 -1.1490 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1655 -1.1997 -1.1850 -1.1997 -1.1850 -1.1997 -1.1820 -1.1820 -1.1820 -1.1820 | E-6*RE 5.94 X\\/\5.25 -4.50 -3.750 -2.250 -1.250 -1.250 -1.250 -1.250 -2.50 -2.50 -2.50 -2.50 -3.750 -2.50 -3.750 -3.750 -3.750 -4.500 -2.500 -5.500 -5.500 -5.500 -5.500 -5.500 -6.500 | ALPHA 2.00 CPW - 0098 - 0045 - 0045 - 0044 - 0112 - 0161 - 0168 - 0113 - 0364 - 0794 - 1595 - 2663 - 3299 - 2325 - 1780 - 1259 - 0975 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0478 - 0692 - 0488 - 0693 - 0688 - 0778 | 2528 X/L .000 .004 .008 .015 .025 .049 .060 .100 .100 .120 .120 .120 .120 .120 .12 | .759 CP 1.1550 .5193 .2235 .0366 -2863 -5369 -7227 .8879 -1.0983 -1.0983 -1.1396 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -1.25 -1.00 -2.50 -1.00 -2.50 -1.00 -2.50 -3.75 -3.50 -3.50 -3.75 -3.50 -3.75 -3.00 -2.25 -3.50 -3.75 -3.00 | AL PHA 2.00 CPW00840047010301490158009403310787157227032389 |
| 2525 X/L .000 .0048 .0155 .040 .080 .140 .120 .260 .340 .340 .340 .540 .540 .540 .540 .540 .540 .540 .5 | .768 CP 1.1506.5176.2091070231535691752186541.14971.13891.14971.13891.14845487328854873288548732885487328854873288346973288329693396 | E-6+RP 4.09 X W 25-4-505-3-3025-1-2-25-5-2-2-2-2-2-2-2-2-2-2-2-2-2-2- | ALPHA 2.00 CPW -0182 -0027 -0021 -0086 -0160 -0160 -0117 -0059 -0174 -2262 -0173 -12669 -2252 -1733 -1284 -0987 -0812 -0675 -0625 -0825 -0825 -0825 -0825 -0825 -0836 -0836 -0836 -0836 -0836 | 2526 X/L -000 -004 -008 -015 -025 -040 -060 -080 -140 -180 -220 -260 -340 -380 -420 -460 -540 -540 -550 -620 -620 -620 -620 -620 -620 -620 -62 | .760 CP 1.1497 .5074 .2056 -0791 -3227 -55002 -5528 -55581 -1.01171 -1.0116 -1.0987 -1.1171 -1.1448 -1.1537 -1.1684 -1.1537 -1.1537 -1.1537 -1.1537 -1.1537 -1.1713 -1.1684 -1.1537 -1.1713 -1.1684 -1.1537 -1.1713 -1.1587 -1.1713 -1.1587 -1.1713 -1.1587 -3680 -3363 -1.1322 -1.1713 -1.171 | E-6*RE 5.03 XW7L 5.26 -4.75 -3.75 -3.72 -1.26 -1.26 -2.25 -1.26 -2.25 -2 | AL PHA 2.06 CPW08840615 .0803 .0805 .0131 .0167 .0136 .08570131 .0167 .03262298 .17672326 .23452298 .17672345 .2298 .1767 .2345 .2298 .1767 .2345 .2298 .345 .2298 .345 .2298 .345 .3266 .3443 .3699 .3612 .3626 .3643 .3676 .3643 .36772 .3664 | 2527 X/L .000 .004 .008 .015 .025 .049 .060 .100 .220 .360 .340 .360 .360 .360 .540 .560 .560 .560 .560 .560 .560 .560 .56 | .760 CP 1.1524 .5132 .2072 .0732 .3135 .5591 .7416 .8860 -1.0191 -1.0939 -1.0864 -1.1409 -1.1409 -1.1439 -1.1655 -1.1469 -1.1409 -1.1655 -1.1456 -1.14 | E-6*RE 5.94 XW/L -5.25 -3.475 -3.475 -3.225 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 | ALPHA 2.00 CPW0098004401120161016801130364079415952663232517802325232517802325 | 2528 X/L .000 .004 .008 .015 .025 .049 .066 .0180 .140 .130 .220 .340 .340 .380 .420 .460 .560 .668 .700 .700 .700 .700 .700 .700 .700 .70 | .759 CP 1.1550 .5193 .2235 .0366 .2863 .5369 .7227 .8879 -1.0119 -1.0983 .1.0985 .1.0985 .1.1396 .1.1342 -1.1446 .1.1642 .1.1763 .1.1646 .1.1642 .1.1646 | E-6*RE 13.49 XV/L -5.25 -3.45 -3.75 -3.06 -3.75 -1.50 -2.25 | AL PHA 2.00 CPW0084004701030114901840331078727832389239917792389239917790695064706510033 |
| 2525 X/L .0048 .0048 .0155 .0460 .0804 .180 .2600 .140 .2600 .3400 .3400 .54 | .768 CP 1.1586.5176.20912.3153.5159.1.9943.1.19943.1.1199.1.1389.1.1199.1.1389.1.1196.2.1196. | E-6+R9 X W 25.056 -4.079 -3.075 -3.025 -1.0 | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0160 -0117 -0252 -0737 -0813 -1566 -2260 -3174 -2260 -3174 -2260 -3174 -2260 -3174 -2260 -3174 -2260 -3174 -2260 -3174 -3252 -1733 -1284 -0987 -3615 -0452 -0675 -0452 -0725 -04621 -0555 -0456 -0823 -0657 -0456 -0823 -0657 -0855 -0456 -0823 -0855 -0856 -0855 -0855 -0855 -0855 -0855 -0855 -0855 -0855 -0855 | 2526 X/L -000 -004 -015 -025 -040 -060 -080 -140 -180 -220 -260 -340 -380 -420 -460 -540 -540 -575 -700 -600 -600 -600 -600 -600 -600 -600 | .760 CP 1.1497 .5074 .2056 -0.079 -1.227 -5602 -7528 -8581 -1.0110 -1.0925 -1.0894 -1.1171 -1.1448 -1.1537 -1.1684 -1.1173 -1.1684 -1.1322 -1.1586 -31630 -1.322 -1.0925 -0.073 -1.1092 -0.073 | E-6*RE 5.03 XW 1.5.26 -4.57 -3.75 -1.20 -2.25 -2.25 -2 | ALPHA 2.00 CPW00840015 .0003 .0005 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .017 .017 .017 .017 .017 .017 .017 .01 | 2527 X/L .000 .004 .008 .015 .025 .049 .060 .140 .160 .220 .340 .360 .340 .360 .360 .360 .360 .360 .360 .360 .36 | .760 CP 1.1524 .5132 .2672 .0733 .3135 .5591 .7416 .8860 -1.0101 -1.0939 -1.0954 -1.1165 -1.1469 -1.1465 -1.1469 -1.1465 -1.1469 -1.147 -1.155 -1.1469 -1.155 -1.1655 | E-6*RE 5.94 X \(\sim \L \) -5.25 -3.475 -3.475 -1.26 -1.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 | ALPHA 2.00 CPW0098004401120161016801130364079415952663232517802325232517802325 | 2528 X/L .000 .004 .008 .015 .025 .049 .060 .030 .140 .120 .220 .340 .340 .380 .420 .440 .560 .580 .580 .580 .580 .688 .688 .688 .688 .688 .688 .688 .6 | .759 CP 1.1550 .5193 .2235 .0366 .2863 .5309 .7227 .8879 -1.0119 -1.0883 -1.0983 -1.0983 -1.0984 -1.1319 -1.1396 -1.1446 -1.1446 -1.1763 | E-6*RE 13.49 XW/L -5.25 -3.40 -3.75 -3.00 -2.25 -1.28 -1.28 -5.25 -3.00 -2.25 -1.28 -5.25 -3.00 -2.25 -1.28 -5.25 -5.25 -6. | AL PHA 2.00 CPW00840047 .0103 .01149 .0158 .0169 .0178003310787278323892389177923891779238917790695064005130033 |
| 2 5 2 5 X / L | .768 CP 1.1586. 5176209187691876918769186541.99431.1971.499431.11971.13891.13891.14841.146381.16 | E-6+RF 4.09 X W 25.045.0-1.09 -1.025.0-1.09 -2.505.0-1.09 | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0 | 2526 X/L -000 -004 -015 -029 -060 -080 -1100 -1200 -1400 -1800 -220 -2400 -3000 -3000 -5 | .760 CP 1.1497 .5074 .2056 -0.079 -1.3227 -5602 -7528 -8581 -1.0119 -1.0987 -1.0127 -1.0894 -1.1171 -1.1448 -1.1537 -1.1684 -1.1537 -1.1684 -1.1537 -1.171 -1.1488 -1.1537 -1.171 -1.171 -5780 -4660 -3363 -1322 -0.073 -0.073 -0. | E-6*RE 5.03 XW-1.5.26 -4.50 -3.75 -3.72 -1.20 -2 | AL PHA 2.00 CPW00840015 .0003 .0005 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0131 .0167 .0167 .0131 .0167 .0131 .0167 | 2527 X/L .000 .004 .008 .015 .025 .040 .060 .100 .140 .122 .260 .360 .360 .360 .360 .360 .360 .360 .3 | .760 CP 1.1524 .5132 .2072 .0732 .3135 .5591 .7416 .8860 -1.0101 -1.0939 -1.0646 -1.1405 -1.1405 -1.1409 -1.1409 -1.1409 -1.1409 -1.1409 -1.1409 -1.1409 -1.1552 -1.1997 -1.1552 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1673 -1.1992 -1.1993 -1.1992 -1.1993 -1.19 | E-6*RE 5.94 X \ \(\lambda \) \(\lambda \) -5.25 -4.50 -3.75 -1.26 -1. | ALPHA 2.00 CPW00980044011201610168011303641595266332992326178023261780097409920478069204830995046309950463059406920468099504630594069809950463059406980995046305940698099504630594069809950463059406980995046305940688099504630594068809950463059406880995046305940688099504630594068809950463059406880776068506550655065506550655065506550655065506550655065506550653 | 2528 X/L .000 .004 .008 .015 .025 .049 .060 .080 .180 .220 .220 .340 .340 .340 .360 .420 .460 .560 .560 .5750 .6750 | .759 CP 1.1550 .5193 .2235 .0366 .2863 .5309 .7227 .8879 -1.0983 -1.0998 -1.1319 -1.1319 -1.1342 -1.1763 -1.1446 -1.1642 -1.1763 -1.1857 -5007 -2.8551 -5007 -3.8551 -5007 -3.8551 -5007 -3.8551 -5007 -3.8551 -5007 -3.8551 -5007 -3.8551 -5007 -3.8551 -3.855 -3.906 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.00 -2.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 -2.50 -1.25 -1.00 | AL PHA 2 - 00 CPW - 00847 - 0047 - 0103 - 01149 - 0158 - 0149 - 0378 - 1578 - 2783 - 2389 - 1377 - 2389 - 1377 - 06640 - 07547 - 06540 - 07547 - 06540 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 06640 - 07547 - 0754 |
| 2525 X/L | . 768 CP 1-1586 -2691 -3153 -3691 -7521 -8654 -1-0113 -1-0943 -1-1429 -1-1389 -1-1429 -1-1389 -1-1429 -1-1389 -1-1429 -1-1385 -1-1655 -1-1682 -2181 -1-1655 -1-1682 -3181 -1-1678 -3288 -2181 -3587 -3687 -3198 -3188 -3188 -3188 -3188 -3188 -3188 -3188 -3188 -3188 -3188 -3188 -3 | E-6+RE 4.09 X W 2.5075-3.0025-1.5075-2.5075- | AL PHA 2.00 CPW -0102 -0027 -0021 -0086 -0160 -0 | 2526 X/L | .760 CP 1.1497 -5074 -2056 -0791 -3227 -5602 -7528 -8581 -1.0110 -1.0925 -1.0894 -1.1171 -1.1474 -1.1474 -1.1713 -1.1684 -1.1571 -1.1586 -6774 -3660 -3363 -1930 -4660 -3363 -1930 -4660 -3363 -1930 -4660 -374 -3680 -3680 -2825 -0743 -1.175 -0743 -1.1876 -2825 -3169 -2825 -3169 -2825 -3169 -2825 -3169 -2825 -3169 -2825 -3169 -2825 -3169 -8684 | E-6*RE 5.03 XW-25050 -4.52050 -3.7520 -1.25050 -2.25050 | AL PHA 2.00 - 0084 - 00815 - 0083 - 00857 - 0131 - 0166 - 0860 - 1663 - 2245 - 2245 - 2245 - 2345 - 2245 - 2345 - | 2527 X/L -000 -004 -008 -015 -025 -040 -061 -100 -140 -180 -220 -360 -360 -360 -360 -360 -360 -360 -36 | .760 CP 1.1524 -5132 -2672 -6732 -3135 -5501 -7416 -8860 -1.0101 -1.0399 -1.0664 -1.1405 -1.14 | E-6*RE 5.94 X \ \(\lambda \) | AL PHA 2.00 CPW0098004401120161016801130364079415952663329923251780232517800975082406020478060204780602047806020478060204780602047806020478060204780603060406020478060306030604060406040604060806040608 | 2528 X/L .000 .004 .008 .015 .025 .040 .060 .100 .1100 .1200 .14 | .759 CP 1.1550 .5193 .2235 .0365 .2863 .5269 .7227 .8879 .10984 .11319 .1136 | E-6*RE 13.49 XW/L -5.25 -4.50 -3.75 -3.00 -2.25 -1.20 -1.25 -1. | AL PHA 2 - 00 CP W - 00847 - 00047 - 01033 - 0158 - 0149 - 00784 - 03311 - 0782 - 27834 - 23892 - 1779 - 132392 - 1779 - 106940 - 05513 - 0031 - 0033 - 003 |
| 2525 X/L | . 768 CP 1-1586 -51791 -87591 -7521 -8654 -1-0113 -1-0943 -1-1429 -1-1389 -1-1389 -1-1389 -1-1429 -1-1389 -1-1385 -1-0142 -1-1655 -1-1 | E-6+RE 4.09 X W 2.596-1-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2- | ALPHA 2.00 CPW -0102-00021 -00021 -00021 -00050 -0160 -0160 -0113 -1566 -0013 -1264 -0015 | 2526 X/L | .760 CP 1.1497 -5074 -2056 -0791 -3227 -5602 -7528 -65581 -1.0110 -1.0925 -1.0854 -1.1171 -1.1474 -1.1474 -1.1586 -6774 -5780 -4660 -3663 -1930 -1122 -1092 -1092 -1092 -1092 -1092 -1092 -1092 -1094 -1175 -6714 -1175 -6714 -1175 -6714 -1175 -6714 -1175 -6714 -1175 -6714 -1175 -6714 -1175 -1175 -1175 -1175 -1175 -1175 -11690 -1175 -1175 -11690 -1175 | E-6*RE 5.03 X \(\(\L \) 5.25 -4.50 -1.25 -1.20 -1.20 -2.2 | ALPHA 2.00 CPU088400131 .0167 .0131 .0167 .0131 .0136 .0857 .0131 .0366 .0863 .1663 .2246 .1767 .1290 .0908 .1678 .08080 | 2527 X/L -000 -008 -015 -025 -040 -068 -1100 -140 -180 -220 -360 -360 -340 -360 -360 -360 -360 -360 -360 -360 -36 | .760 CP 1.1524 .5132 .2672 .6732 .3135 .5501 .7416 .8860 .10101 . | E-6*RE 5.94 X | AL PHA 2.00 CPW - 0098 - 0045 - 0044 - 0112 - 0161 - 0168 - 0113 - 0364 - 0794 - 1595 - 2663 - 3299 - 2326 - 1259 - 2955 - 1780 - 1259 - 0975 - 0824 - 0602 - 0478 - 0018 | 2528 X/L .000 .004 .008 .015 .025 .040 .060 .0140 .140 .180 .220 .340 .340 .420 .460 .540 .540 .540 .620 .700 .600 .600 .600 .600 .600 .600 .60 | .759 CP 1.1550 .8193 .2235 .9366 -2863 -5269 -7227 -8879 -1.0983 -1.0983 -1.1396 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1488 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1488 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1342 -1.1485 -1.1348 -1.1342 -1.1485 -1.1348 -1.1485 -1.1348 -1.1485 -1.1348 -1.1485 -1.1348 -1.1485 -1.1348 -1.1485 -1.1348 -1.1485 -1.1348 -1.1485 -1.1348 -1.13 | E-6*RE 13.49 XW/L -5.25 -4.50 -2.25 -1.26 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -2.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1.26 -1.25 -1. | AL PHA 2 - 00 CP W - 00847 - 00047 - 01033 - 0158 - 0149 - 00784 - 03311 - 0782 - 27834 - 23892 - 1779 - 132392 - 1779 - 106940 - 05513 - 0031 - 0033 - 003 |

Table 3.4 Concluded

| 2536 | NR. | MACH | E-6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA | NR. | MACH | E- 6+RE | AL PHA |
|--|--------|---------|--------|--------|--------|--------|---------|--------|------|-----------|---------|--------|
| | 2529 | -758 | 11.78 | 2.00 | 2530 | .759 | 9.96 | 2.00 | 2531 | .762 | 7.81 | 2.00 |
| .004 | X/L | CP | XW/L | CPW | x1L | CP | XWAL | CPW | X/L | CP | XWAL | CPW |
| .0084 .5245 -4.590049 .0099 .009 .0099 .0099 .005 .2255 -3.75 .0098 .2253 -3.75 .0099 .005 .2256 .3.75 .0098 .2253 -3.75 .0009 .0099 .005 .2255 .0161 .0098 .2253 -3.75 .0098 .0099 .005 .225 .0161 .005 .0099 .0098 .0098 .0098 .0098 .0098 .0099 .0098 .0099 .0098 .0099 | .000 | 1.1520 | -5.25 | 0104 | .000 | 1.1495 | -5-25 | 0103 | .000 | 1 - 1 538 | -5.25 | 0107 |
| 0.08 | | | | | .004 | -5143 | -4-50 | 0051 | .004 | .5313 | -4-50 | 0053 |
| .0150514 -3.00 .0096 | | | | | | | | | .008 | .2253 | -3.75 | |
| | | | | | .015 | 0753 | -3.00 | .0112 | .015 | 0497 | -3.00 | .0086 |
| 0.66 | .025 | 2879 | -2.25 | .0128 | .025 | 2968 | -2.25 | .0161 | | | -2.25 | .0148 |
| 1889 -8977 -1.88 | . 0 40 | 5370 | -1.50 | .0139 | . 0 40 | 5342 | -1.50 | .0170 | .040 | 5211 | -1.50 | .0171 |
| 1.00 | .060 | 7280 | -1.25 | .0125 | .060 | | -1-25 | .0118 | | | -1.25 | .0110 |
| 1.48 | .080 | 8977 | -1.00 | .0009 | .080 | 8915 | -1.00 | .0083 | | | | . 0042 |
| 1.88 | -100 | -1-0184 | 75 | 0141 | -100 | | 75 | | | | 75 | 0139 |
| 1.228 | - 1 40 | | 50 | 0344 | -146 | | | | | | | 0330 |
| 260 | -180 | -1-1021 | 25 | 0843 | | | | | | | | |
| 388 | .220 | -1.1053 | .00 | 1638 | | | | | | | | 1600 |
| 348 | .560 | -1-1384 | .25 | | | | | | | | | |
| 388 | .300 | -1.1514 | . 50 | | | | | | | | | |
| 1.473 1.25 -1.789 | .340 | -1.1492 | | | | | | | | | | |
| 1.1723 | | | | | | | | | | | | |
| See 1.1677 1.75 -1.017 -500 -1.1761 1.75 -1.020 -500 -1.1622 1.75 -0.069 -0. | | | | | | | | | | | | |
| 1.289 | | | | | | | | | | | | |
| 5.88 -1.2420 2.25 -0684 -586 -1.2316 2.25 -0668 -626 -626 -7.653 2.58 -0686 -626 -7.653 2.58 -0686 -626 -6275 2.58 -0686 -626 -626 -7.653 2.58 -0686 -626 -6275 2.58 -0686 -626 -6275 -6586 -628 -6275 -6586 -628 -6275 -6586 -628 -628 -628 -628 -628 -628 -6886 -6596 -6596 -6586 -6582 -8686 -1982 -8886 -3193 3.58 -8522 -8686 -1198 -525 -0852 -8695 -8582 -8686 -1898 -525 -0851 975 -8293 -4.59 -8934 -956 -8632 -3.75 -8085 -959 -1873 -4.59 -9042 975 -8293 -3143 -1.59 -8042 -375 -8042 -808 -1.153 -8042 | | | | | | | | | | | | |
| . 628 - 8296 | | | | | | | | | | | | |
| . 786 | | | | | | | | | | | | |
| 1.00 | | | | | | | | | | | | |
| . 9881215 - 5.259034 | | | | | | | | | | | | |
| .958 | | | | | | | | | | | | |
| .9750290 -3.75 .0043 | | | | | | | | | | | | |
| 1,000 | | | | | | | | | | | | |
| . 800 | | | | | | | | | | | | |
| .004 | | | | | | | | | | | | |
| . 3615 - 1.25 | | | | | | | | | | | | |
| . 828 .234 | | | | | | | | | | | | |
| .858 .191375 .8689 .858 .190175 .8625 .858 .185275 .8616 .100 .0448 .50 .0712 .150 .8581 .25 .25 .2724 .280 .1717 .25 .8757 .358 .3202 .58 .8622 .25 .2662 .2662 .25 .2662 .25 .2662 .25 .2662 .25 .2662 .25 .2662 .25 .2662 | | | | | | | | | | | | |
| . 188 | | | | | | | | | | | | |
| .150068525 .0724 .150068825 .0762 .2001773 .00 .0766 .2502720 .25 .0667 .2502696 .25 .0735 .2502720 .25 .0667 .2502720 .25 .0667 .2502720 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .250 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .25 .0667 .2502727 .2502727 .25 .0667 .2502727 .2502027 .250 | | | | | | | | | | | | |
| . 2001773 | | | | | | | | | | | | |
| .2502606 .25 .0735 .2502720 .25 .0667 .2502797 .25 .0657 .3503029 .50 .0672 .3503029 .50 .0672 .3503029 .50 .0672 .3503029 .50 .0672 .3503029 .350 .3029 .350 .3029 .50 .0662 .350 .3029 .350 .3029 .350 .3029 .350 .3029 .350 .3029 .350 .3029 .350 .3029 .350 .3029 .350 .3029 .30 | | | | | | | | | | | | |
| .3503029 | | | | | | | | | | | | |
| . 4502021 .75 .0642 .4502076 .75 .0615 .4502088 .75 .0610 .5500633 1.00 .0616 .5500652 1.00 .0665 .5500707 1.00 .0585 .5500707 1.00 .0585 .5500707 1.00 .0585 .5500707 1.00 .0585 .5500707 1.00 .0585 .550 .0707 1.00 .0585 .550 .0707 1.00 .0585 .550 .0707 1.00 .0585 .550 .0707 1.00 .0585 .550 .0707 1.00 .0585 .0585 .0590 .550 .0836 1.25 .0513 .0585 .3254 1.50 .0373 .550 .2355 1.50 .0373 .550 .2394 1.55 .0373 .550 .3274 1.50 .0372 .150 .0373 .0373 .150 .0 | | | | | | | | | | | | |
| .5500633 | | | | | | | | | | | | |
| .658 .0941 1.25 .0577 .658 .0928 1.25 .0569 .658 .0836 1.25 .0513 .750 .2391 1.50 .0383 .750 .2395 1.50 .0373 .750 .2395 1.50 .0373 .750 .2394 1.55 .0372 1.000 .0141 2.00 .0148 2.00 .0148 2.25 .0018 2.25 .0164 2.50 .0049 2.50 .0051 2.50 .0051 2.50 .0051 2.50 .0051 2.50 .0051 2.75 .0008 | | | | | | | | | | | | |
| .750 .2451 1.50 .0383 .750 .2395 1.50 .0373 .550 .2304 1.50 .0378 .850 .3274 1.75 .0272 .850 .3256 1.75 .0249 .650 .3129 1.75 .0279 .1000 .0141 2.00 .0148 2.250184 2.250184 2.500049 2.500180 2.250180 2.500059 2.75 .0018 | | | | | | | | | | | | |
| .850 .3274 1.75 .0272 | | | | | | | | | | | | |
| 1.000 .0141 2.00 .0148 2.250104 2.250103 2.500049 2.75 .0008 2.75 .0008 | | | | | | | | | | | | |
| 2.250104 2.500049 2.500051 2.75 .0009 2.75 .0018 2.75 .0008 | | | | | | | | | | | | |
| 2.500049 2.500051 2.500053 2.75 .0009 2.75 .0018 2.75 .0008 | | .0.41 | | | 1 | | | | | | | |
| 2.75 .0009 2.75 .0018 2.75 .0008 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | 3.50 | | | | 3.50 | | | | 3.50 | .0086 |

Table 3.5 ARA tests. Airfoil surface pressure distributions.

Note: The aerodynamic coefficients are listed in the respective plots. Transition at 8% c on upper and lower surfaces. Re = $6 \cdot 10^6$

| | Run | 37 58 59 | | 59 60 | | | 6 | 1 | 62 | | 63 | | 69 | | 89 | | | | | | |
|-------|---------------|------------------|-------|------------------|--------|------------------|-------|------------------|--------|------------------|--------|------------------|--------|------------------|--------|------------------|--------|------------------|--------|------|--|
| 1 | M | | | | .702 | 0.701 | | 0.701 | | | 700 | 0.700 | | 0.700 | | 0,722 | | 0.741 | | | |
| x/c | 0 | 0.78 | | 0.602 | | | .19 | | | 1 | 71 | 2. | | 3.60 | | 4.59 | | 0.75 | | 0.74 | |
| Jpper | | C _p | р/Н | C _D | p/H | C _p | p/H | Cp | p/H | C _p | р/Н | Ср | p/H | | |
| 1,000 | \rightarrow | 0.104 | .8031 | 0.112 | .7473 | 0.104 | .7459 | 0.100 | .7450 | 0.102 | .7460 | 0.084 | .7419 | -0.021 | .7160 | 0,103 | .7336 | 0.106 | .7227 | | |
| 0.953 | - 1 | 0.017 | .7858 | 0.027 | .7262 | 0.024 | .7261 | 0.023 | .7257 | 0.022 | .7262 | 0.084 | .7249 | -0.064 | .7053 | 0.027 | .7138 | 0.030 | .7025 | | |
| 0.888 | | -0.107 | .7612 | -0.099 | .6951 | -0.101 | .6950 | -0.103 | .6944 | -0.107 | .6944 | -0.100 | .6965 | -0.136 | .6875 | -0.097 | .6818 | -0.093 | .6698 | | |
| 0.819 | - 1 | -0.249 | .7329 | -0.251 | .6572 | -0.257 | .6564 | -0.263 | .6549 | -0.265 | .6552 | -0.241 | .6615 | -0.243 | .6611 | -0.255 | .6412 | -0.253 | .6272 | | |
| 0.749 | | -0.389 | .7052 | -0.411 | .6176 | -0.425 | .6149 | -0.436 | .6119 | -0.433 | .6136 | -0.380 | .6273 | -0.364 | .6313 | -0.430 | .5961 | ~0.433 | .5792 | | |
| 3.698 | - 1 | -0.458 | .6915 | -0.494 | .5968 | -0.518 | .5919 | -0.537 | .5869 | -0.528 | .5901 | -0.450 | .6099 | -0.452 | .6094 | -0.531 | .5700 | -0.543 | .5496 | | |
| 0.659 | | -0.496 | .6839 | -0.541 | .5854 | -0.572 | .5783 | -0.598 | .5718 | -0.582 | .5767 | -0.493 | .5994 | -0.530 | .5901 | -0.594 | .5539 | -0.615 | .5305 | | |
| 0.619 | - 1 | -0.512 | .6807 | -0.559 | .5808 | -0.600 | .5715 | -0.632 | .5634 | -0.609 | .5702 | -0.536 | .5888 | -0.616 | .5689 | -0.629 | .5449 | -0.660 | .5184 | | |
| 0.579 | | -0.532 | .6768 | -0.579 | .5758 | -0.628 | .5645 | -0.666 | .5549 | -0.625 | .5661 | -0.617 | .5688 | -0.728 | .5413 | -0.663 | . 5362 | -0.709 | .5055 | | |
| 0.540 | | -0.533 -0.540 | .6765 | -0.576 | .5765 | -0.633 | .5633 | -0.677 | .5523 | -0.614 | .5690 | -0.729 | .5412 | -0.824 | .5176 | -0.669 | .5344 | ~0.716 | .5037 | | |
| 0.499 | 1 | -0.544 | .6751 | -0.577 -0.575 | .5762 | -0.640 | .5615 | -0.687 | .5498 | -0.603 | .5716 | -0.852 | .5107 | -0.904 | .4976 | -0.675 | .5330 | ~0.708 ~0.686 | .5056 | | |
| 0.460 | - 1 | -0.555 | .6722 | -0.578 | .5760 | -0.644 -0.655 | .5605 | -0.692 -0.697 | .5485 | -0.610 -0.679 | .5699 | -1.047 -1.589 | .4625 | -0.987 -1.231 | .4168 | -0.680 -0.689 | .5293 | -0.641 | .5236 | | |
| 0.379 | - 1 | -0.555 | .6722 | -0.569 | .5784 | -0.651 | .5587 | -0.681 | .5513 | -1.072 | .4555 | -1.586 | . 3294 | -1.483 | .3546 | -0.680 | .5316 | ~0.580 | .5400 | | |
| 0.339 | - 1 | -0.552 | .6727 | -0.554 | .5820 | -0.643 | .5607 | -0.668 | .5546 | -1.438 | . 3649 | -1.599 | . 3262 | -1.672 | . 3080 | -0.669 | .5345 | -0.664 | .5175 | | |
| 0.300 | - 1 | -0.575 | .6681 | -0.566 | .5791 | -0.667 | .5549 | -0.661 | .5563 | -1.462 | . 3591 | -1.609 | .3237 | -1.687 | . 3042 | -0.686 | .5301 | -0.990 | .4305 | | |
| 0.250 | - 1 | -0.608 | .6617 | -0.583 | .5748 | -0.708 | .5446 | -1.136 | .4385 | -1.465 | .3582 | -1.605 | .3247 | -1.693 | . 3027 | -0.684 | .5307 | -1.018 | .4230 | | |
| 0.199 | - 1 | -0.661 | .6510 | -0.629 | . 5634 | -0.780 | .5249 | -1.281 | .4025 | -1.486 | . 3531 | -1.620 | . 3211 | -1.701 | .3007 | -1.010 | .4465 | -1.019 | .4228 | | |
| 0.149 | | -0.727 | .6379 | -0.674 | .5523 | -0.868 | .5049 | -1.274 | .4043 | ~1.459 | . 3597 | -1.600 | .3260 | -1.671 | . 3081 | -0.977 | .4551 | -1.008 | .4258 | | |
| 0.101 | - 1 | -0.797 | .6240 | -0.676 | .5517 | -1.095 | .4487 | -1.229 | .4155 | ~1.409 | . 3722 | -1.534 | .3423 | -1.608 | . 3236 | -1.036 | .4399 | -0.996 | .4289 | | |
| 0.075 | - 1 | -0.885 | 6066 | -0.705 | .5446 | -0.940 | .4872 | -1.190 | .4251 | ~1.360 | . 3843 | -1.485 | .3543 | -1.568 | . 3336 | -0.876 | .4811 | -0.822 | .4752 | | |
| 0.050 | - 1 | -0.819 | .6197 | -0.531 | .5877 | -0.769 | .5295 | -0.973 | .4790 | ~1.129 | .4413 | -1.249 | .4126 | -1.366 | . 3835 | -0.722 | .5209 | -0.669 | .5160 | | |
| 0.026 | - 1 | -0.513 | .6805 | -0.152 | .6818 | -0.381 | .6256 | -0.596 | .5723 | ~0.809 | .5207 | -1.019 | .4695 | -1.139 | .4396 | -0.333 | .6212 | -0.279 | .6201 | | |
| 0.016 | - 1 | -0.295 | .7238 | 0.096 | .7435 | -0.141 | .6853 | -0.376 | .6268 | -0.612 | .5694 | -0.837 | .5145 | -0.998 | .4744 | -0.095 | .6825 | -0.042 | .6834 | | |
| 0.008 | - 1 | 0.097 | 8108. | 0.462 | .8344 | 0.252 | .7827 | 0.040 | . 7300 | 0.449 | .6792 | -0.351 | .6344 | -0.464 | .6064 | 0.292 | .7822 | 0.335 | .7840 | | |
| 0.002 | _ | 0.685 | .9187 | 0.950 | .9554 | 0.799 | .9182 | 0.630 | .8763 | 0.449 | .8318 | 0.261 | .7856 | 0.141 | .7560 | 0,826 | .9199 | 0.857 | .9232 | | |
| Lower | | | | | | | | | | | | | | | | | | | | | |
| 0 | \neg | 1.088 | .9988 | 1.124 | .9987 | 1.127 | .9995 | 1,099 | .9926 | 1.028 | .9752 | 0.933 | .9516 | 0.857 | .9330 | 1,135 | . 9995 | 1.142 | .9992 | | |
| 0.003 | - 1 | 0.784 | .9383 | 0.533 | .8518 | 0.770 | .9111 | 0.934 | .9517 | 1.044 | .9790 | 1.098 | .9925 | 1.120 | .9979 | 0.762 | .9034 | 0.748 | .8942 | | |
| 0.011 | í | 0.088 | .8000 | -0.326 | .6387 | 0.041 | .7303 | 0.321 | . 7996 | 0.538 | .8539 | 0.689 | .8915 | 0.778 | .9133 | 0.027 | .7139 | 0.002 | .6951 | | |
| 0.020 | - 1 | 0.174 | .8171 | -0.104 | ,6937 | 0.150 | .7573 | 0.345 | .8056 | 0.508 | .8465 | 0.625 | .8755 | 0.694 | .8927 | 0.142 | .7436 | 0.127 | .7284 | | |
| 0.040 | - 1 | 0.141 | .8104 | -0.043 | .7089 | 0.128 | .7518 | 0.278 | .7891 | 0.410 | .8221 | 0.507 | .8464 | 0.569 | .8617 | 0.124 | .7388 | 0.114 | .7250 | | |
| 0.070 | - 1 | 0.047 | .7919 | -0.099 | .6950 | 0.034 | .7285 | 0.164 | . 7609 | 0.282 | . 7904 | 0.369 | .8123 | 0.425 | .8261 | 0.031 | .7148 | 0.023 | . 7007 | | |
| 0.100 | - 1 | 0.003 | .7831 | -0.149 | .6826 | -0.012 | .7172 | 0.104 | .7458 | 0.210 | .7726 | 0.290 | .7928 | 0.339 | .8050 | -0.016 | .7029 | -0.024 | .6882 | | |
| 0.149 | | -0.094 -0.210 | .7638 | -0.239 -0.361 | .6602 | -0.118 | .6909 | -0.011 | .7173 | ~0.066 | .7045 | 0.163 | .7614 | 0.207 | .7310 | -0.124 | .6750 | -0.134 | .6589 | | |
| 0.229 | | -0.210 | .7321 | -0.391 | .6225 | -0.253 -0.303 | .6451 | -0.157 -0.223 | .6648 | -0.145 | .6850 | -0.087 | .6998 | -0.060 | .7064 | -0.264 | .6250 | -0.338 | .6044 | | |
| 0.320 | - 1 | -0.227 | .7374 | -0.341 | .6348 | -0.270 | .6532 | -0.223 | .6695 | -0.138 | .6865 | -0.091 | .6988 | -0.072 | .7032 | -0.283 | .6340 | -0.298 | .6151 | | |
| 0.459 | | -0.163 | .7502 | -0.247 | .6583 | -0.192 | .6725 | -0.140 | .6854 | -0.087 | .6992 | -0.051 | ,7087 | -0.041 | .7110 | -0.200 | .6553 | -0.209 | .6388 | | |
| 0.539 | | -0.053 | .7720 | -0.105 | .6936 | -0.065 | .7040 | -0.027 | .7133 | 0.013 | .7239 | 0.038 | .7306 | 0.039 | .7309 | -0.068 | .6894 | -0.071 | .6756 | | |
| 0.640 | | 0.087 | .7997 | 0.062 | .7350 | 0.089 | .7423 | 0.115 | .7485 | 0.142 | .7560 | 0,158 | .7601 | 0.152 | .7587 | 0.090 | .7301 | 0.091 | .7188 | | |
| 0.740 | - 1 | 0.218 | .8258 | 0.210 | .7716 | 0.229 | .7770 | 0,248 | .7815 | 0.267 | . 7869 | 0,276 | . 7895 | 0.264 | . 7864 | 0.232 | .7666 | 0.235 | .7573 | | |
| 0.859 | - 1 | 0.319 | .8460 | 0.320 | .7991 | 0.334 | .8030 | 0.347 | .8062 | 0.362 | .8102 | 0.367 | .8118 | 0.349 | .8073 | 0.388 | .7941 | 0.343 | .7860 | | |
| 0.952 | - 1 | 0.263 | .8347 | 0.269 | .7864 | 0.275 | .7884 | 0.281 | .7898 | 0.292 | .7929 | 0.288 | .7925 | 0.245 | .7818 | 0.278 | .7785 | 0.282 | . 7698 | | |

Table 3.5 Concluded

| | | | | | | | | | | | | _ | |
|-------|-----|----------------|--------|--------|--------|----------------|-------|----------------|-------|--------|--------|----------------|-------|
| / | Run | 9 | 8 | 10 | 6 | 10 | 7 | 10 | 8 | 15 | 54 | 10 | 9 |
| 1 | H | 0. | 752 | 0. | 760 | 0. | 759 | 0. | 761 | 0 | .761 | 0. | 761 |
| x/c | ao | 0. | 73 | -1. | 17 | -0. | 22 | 0. | 26 | 0 | .49 | 0. | |
| Upper | | C _p | p/H | Ср | p/H | C _p | p/H | C _p | p/H | Cp | p/H | C _p | p/H |
| 1.000 | - | 0.107 | .7165 | 0.123 | .7163 | 0.112 | .7136 | 0.107 | .7106 | 0.106 | .7105 | 0.104 | .7101 |
| 0.953 | | 0.033 | .6964 | 0.040 | .6935 | 0.036 | .6926 | 0.034 | .6905 | 0.035 | .6908 | 0.033 | .6906 |
| 0.888 | | -0.089 | .6632 | -0.083 | .6595 | -0.085 | .6592 | -0.084 | .6578 | -0.085 | .6579 | -0.083 | .6584 |
| 0.819 | | -0.247 | .6203 | -0.239 | .6165 | -0.242 | .6162 | -0.239 | .6149 | -0.240 | .6150 | -0.233 | .6170 |
| 0.749 | | -0.426 | .5714 | -0.414 | . 5684 | -0.420 | .5671 | -0.414 | .5666 | -0.418 | .5659 | -0.398 | .5716 |
| 0.698 | | -0.539 | .5408 | -0.517 | .5398 | -0.530 | .5367 | -0.519 | .5375 | -0.529 | .5350 | -0.487 | .5469 |
| 0.659 | | -0.614 | .5205 | -0.582 | . 5220 | -0.600 | .5174 | -0.602 | .5146 | -0.600 | .5154 | -0.526 | .5360 |
| 0.619 | | -0.659 | .5082 | -0.616 | .5127 | -0.666 | .4994 | -0.806 | .4582 | -0.625 | .5085 | -0.562 | .5263 |
| 0.579 | | -0.677 | . 5034 | -0.641 | .5057 | -0.748 | .4767 | -0.793 | .4618 | -0.644 | .5034 | -0.908 | .4307 |
| 0.540 | | -0.626 | .5170 | -0.622 | .5109 | -0.742 | .4785 | -0.727 | .4800 | -0.739 | .4771 | -0.969 | .4137 |
| 0.499 | - 1 | -0.590 | .5270 | -0.603 | .5163 | -0.728 | .4823 | -0.666 | .4969 | -0.876 | .4393 | -0.973 | .4127 |
| 0.460 | | -0.839 | .4592 | -0.587 | .5206 | -0.710 | .4873 | -0.609 | .5127 | -0.894 | .4344 | -0.990 | .4080 |
| 0.419 | | -0.982 | .4202 | -0.576 | .5236 | -0.678 | .4961 | -0.754 | .4728 | -0.930 | .4242 | -0.995 | .4065 |
| 0.379 | | -0.987 | .4190 | -0.547 | .5316 | -0.640 | .5064 | -0.849 | .4465 | -0.930 | .4244 | -0.986 | .4091 |
| 0.339 | | -0.964 | .4253 | -0.521 | .5388 | -0.619 | .5124 | -0.823 | .4535 | -0.885 | .4367 | -0.968 | .4139 |
| 0.300 | | -1.009 | .4129 | -0.522 | .5385 | -0.610 | .5147 | -0.851 | .4458 | -0.942 | .4210 | -0.997 | .4061 |
| 0.199 | | -1.013 | .4119 | -0.526 | .5374 | -0.755 | .4749 | -0.887 | .4357 | -0.948 | .4194 | -0.994 | .4070 |
| 0.149 | | -0.999 | .4157 | -0.543 | .5329 | -0.790 | .4653 | -0.891 | .4347 | -0.936 | .4225 | -0.975 | .4121 |
| 0.101 | | -0.983 | .4200 | -0.542 | .5331 | -0.746 | .4774 | -0.840 | .4489 | -0.900 | .4325 | -0.954 | .4178 |
| 0.075 | | -0.960 | .4264 | -0.476 | .5512 | ÷0.745 | .4776 | -0.863 | .4425 | -0.877 | .4390 | -0.927 | .4253 |
| 0.050 | | -0.786 | .4735 | -0.454 | .5573 | -0.661 | .5007 | -0.712 | .4843 | -0.727 | .4805 | -0.756 | .4727 |
| 0.026 | | -0.632 | .5155 | -0.255 | .6122 | -0.439 | .5618 | -0.519 | .5375 | -0.559 | .5267 | -0.600 | .5158 |
| 0.016 | | -0.244 | .6210 | 0.127 | .7175 | -0.050 | .6688 | -0.133 | .6444 | -0.173 | .6333 | -0.214 | .6223 |
| 0.008 | | -0.010 | .6848 | 0.371 | . 7846 | 0.194 | .7360 | 0.105 | .7101 | 0.060 | .6979 | 0.019 | .6866 |
| 0.002 | | 0.366 | .7868 | 0.705 | .8768 | 0.546 | .8329 | 0.467 | .8103 | 0.430 | .8000 | 0.390 | .7892 |
| | | 0.875 | .9254 | 1.082 | .9806 | 1.002 | .9586 | 0.947 | .9429 | 0.922 | .9360 | 0.892 | .9279 |
| Lower | | | | | | | | | | | | | |
| 0 | | 1.147 | .9992 | 1.093 | .9834 | 1.141 | .9969 | 1.150 | .9992 | 1,153 | 1.0000 | 1.151 | .9994 |
| 0.003 | | 0.744 | .8897 | 0.283 | .7605 | 0.526 | .8276 | 0.635 | .8567 | 0.666 | .8653 | 0.732 | .8836 |
| 0.011 | | -0.010 | .6848 | -0.921 | .4287 | -0.393 | .5745 | -0.198 | .6264 | -0.109 | .6512 | -0.033 | .6724 |
| 0.020 | | 0.122 | .7206 | -0.653 | .5026 | -0.152 | .6410 | -0.005 | .6798 | 0.056 | .6967 | 0.107 | .7110 |
| 0.040 | | 0.113 | .7180 | -0.234 | .6180 | -0.043 | .6708 | 0.021 | .6870 | 0.065 | .6993 | 0.103 | .7098 |
| 0.070 | | 0.023 | .6936 | -0.284 | .6042 | -0.115 | .6511 | -0.056 | .6655 | -0.019 | .6761 | 0.014 | .6853 |
| 0.100 | | -0.025 | .6807 | -0.330 | .5914 | -0.174 | .6347 | -0.096 | .6545 | -0.063 | .6638 | -0.032 | .6725 |
| 0.149 | | -0.136 | .6504 | -0.411 | .5691 | -0.270 | .6083 | -0.205 | .6245 | -0.173 | .6335 | -0.144 | .6416 |
| 0.229 | | -0.288 | .6091 | -0.578 | .5230 | -0.425 | .5656 | -0.361 | .5813 | -0.330 | .5902 | -0.300 | .5985 |
| 0.320 | | -0.348 | .5927 | -0.599 | .5175 | -0.470 | .5532 | -0.417 | .5659 | -0.389 | .5738 | -0.363 | .5811 |
| 0.390 | | -0.305 | .6045 | -0.470 | .5530 | -0.394 | .5743 | -0.356 | .5826 | -0.336 | .5885 | -0.316 | .5942 |
| 0.459 | | -0.212 | .6297 | -0.327 | .5924 | -0.275 | .6071 | -0.248 | .6125 | -0.234 | .6167 | -0.219 | .6209 |
| 0.539 | | -0.071 | .6682 | -0.149 | .6414 | -0.113 | .6516 | -0.094 | .6550 | -0.084 | .6580 | -0.074 | .6610 |
| 0.640 | | 0.093 | .7128 | 0.040 | .6934 | 0.065 | .7007 | 0.079 | .7028 | 0.086 | .7050 | 0.092 | .7069 |
| 0.740 | | 0.238 | .7522 | 0.196 | .7363 | 0.217 | .7424 | 0.228 | .7441 | 0.233 | .7458 | 0.238 | .7472 |
| 0.859 | | 0.346 | .7814 | 0.313 | .7687 | 0.330 | .7737 | 0.340 | .7751 | 0.343 | .7761 | 0.347 | .7774 |
| 0.952 | | 0.286 | .7651 | 0.271 | .7571 | 0.277 | .7591 | 0.281 | .7588 | 0.284 | .7596 | 0.285 | .7602 |

| \ | Run | 1 | 10 | 1 | 11 | 1 | 19 | 1 | 31 | 1 | 50 | 1 | 12 |
|-------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|----------------|--------|--------|-------|
| 1 | м | 0. | 760 | 0. | 759 | 0. | 771 | 0. | 779 | 0. | 799 | 0. | 761 |
| x/c | 00 | 1. | 18 | 1. | 67 | 0. | 72 | 0. | 71 | 0. | 73 | 2. | 68 |
| Upper | / | Cp | p/H | Cp | p/H | C _p | p/H | Cp | p/H | C _p | p/H | Cp | p/H |
| 1.000 | | 0.089 | .7063 | 0.044 | .6945 | 0.087 | .6996 | 0.053 | .6845 | -0.051 | .6416 | -0.154 | .6385 |
| 0.953 | | 0.024 | .6884 | -0.014 | .6785 | 0.024 | .6817 | -0.006 | .6678 | -0.110 | .6241 | -0.227 | .6183 |
| 0.888 | | -0.085 | .6584 | -0.112 | .6515 | -0.082 | .6521 | -0.102 | .6405 | -0.173 | .6056 | -0.276 | .604 |
| 0.819 | | -0.218 | .6216 | -0.237 | .6171 | -0.214 | .6151 | -0.220 | .6067 | -0.251 | . 5829 | -0.341 | . 586 |
| 0.749 | - 1 | -0.355 | .5838 | -0.375 | .5792 | -0.352 | .5762 | -0.357 | .5677 | -0.346 | .5550 | -0.415 | . 566 |
| 0.698 | | -0.450 | .5577 | -0.482 | .5496 | -0.459 | .5464 | -0.494 | . 5289 | -0.450 | .5243 | -0.471 | .550 |
| 0.659 | | -0.556 | .5283 | -0.583 | .5218 | -0.664 | .4886 | -0.877 | .4197 | -0.782 | .4270 | -0.518 | .538 |
| 0.619 | | -0.970 | .4141 | -0.876 | .4411 | -1.049 | . 3806 | -1.043 | . 3726 | -0.995 | . 3645 | -0.567 | .524 |
| 0.579 | | -1.123 | .3719 | -1.198 | .3523 | -1.027 | . 3867 | -1.015 | . 3805 | -0.962 | . 3741 | -0.613 | .511 |
| 0.540 | | -1.094 | . 3799 | -1.160 | . 3627 | -0.997 | . 3953 | -0.982 | . 3898 | -0.926 | . 3847 | -0.721 | .481 |
| 0.499 | | -1.087 | .3817 | -1.162 | . 3621 | -0.981 | . 3998 | -0.961 | . 3959 | -0.902 | . 3917 | -1.112 | . 373 |
| 0.460 | | -1.093 | .3802 | -1.155 | . 3641 | -0.988 | . 3979 | -0.966 | . 3945 | -0.900 | . 3922 | -1.232 | . 340 |
| 0.419 | | -1.081 | . 3835 | -1.142 | .3677 | -0.983 | . 3990 | -0.958 | . 3969 | -0.889 | . 3955 | -1.221 | . 343 |
| 0.379 | | -1.067 | . 3874 | -1.131 | .3708 | -0.968 | .4033 | -0.941 | .4016 | -0.872 | . 4005 | -1.205 | . 348 |
| 0.339 | | -1.059 | . 3895 | -1.118 | . 3745 | -0.952 | .4078 | -0.923 | .4068 | -0.847 | .4079 | -1.201 | . 349 |
| 0.300 | | -1.065 | . 3878 | -1.126 | .3720 | -0.973 | .4020 | -0.941 | .4015 | -0.862 | . 4035 | -1.203 | . 348 |
| 0.250 | | -1.051 | .3918 | -1.120 | . 3738 | -0.966 | .4040 | -0.932 | .4042 | -0.848 | .4076 | -1.194 | . 351 |
| 0.199 | | -1.056 | . 3903 | -1.102 | .3788 | -0.942 | .4105 | -0.907 | .4113 | -0.823 | .4148 | -1.175 | . 356 |
| 0.149 | | -1.008 | .4036 | -1.073 | . 3869 | -0.918 | .4173 | -0.879 | .4194 | -0.780 | .4274 | -1.145 | . 364 |
| 0.101 | | -0.969 | .4143 | -0.984 | .4112 | -0.889 | .4256 | -0.844 | .4292 | -0.742 | .4387 | -1.076 | . 383 |
| 0.075 | | -0.877 | .4397 | -0.950 | .4207 | -0.718 | .4735 | -0.678 | .4764 | -0.598 | . 4809 | -1.027 | . 397 |
| 0.050 | | -0.672 | .4963 | -0.731 | .4809 | -0.561 | .5177 | -0.520 | .5216 | -0.425 | .5318 | -0.804 | .458 |
| 0.026 | | -0.288 | .6022 | -0.358 | .5838 | -0.178 | .6252 | -0.138 | .6301 | -0.049 | .6421 | -0.453 | . 555 |
| 0.016 | | -0.058 | .6658 | -0.139 | .6441 | 0.053 | .6901 | 0.091 | .6953 | 0.182 | . 7098 | -0.246 | .613 |
| 0.008 | | 0.316 | .7689 | 0.246 | .7501 | 0.420 | .7929 | 0.454 | .7987 | 0.531 | .8125 | 0.149 | .722 |
| 0.002 | | 0.836 | .9126 | 0.781 | .8975 | 0.912 | .9310 | 0.934 | .9354 | 0.987 | .9464 | 0.701 | . 874 |
| Lower | | | | | | | | | | | | | |
| 0 | | 1.151 | .9994 | 1.144 | .9977 | 1.155 | .9994 | 1.159 | .9995 | 1.167 | .9991 | 1.129 | .993 |
| 0.003 | | 0.813 | .9061 | 0.875 | .9234 | 0.718 | .8768 | 0.680 | .8630 | 0.618 | .8379 | 0.950 | .94 |
| 0.011 | | 0.103 | .7101 | 0.206 | .7393 | -0.057 | .6591 | -0.098 | .6416 | -0.206 | .5960 | 0.346 | .776 |
| 0.020 | | 0.201 | .7373 | 0.273 | .7577 | 0.093 | .7013 | 9.067 | .6886 | -0.003 | .6557 | 0.371 | . 78 |
| 0.040 | | 0.174 | .7298 | 0.229 | .7456 | 0.094 | .7015 | 0.077 | .6913 | 0.036 | .6669 | 0.306 | . 765 |
| 0.070 | | 0.077 | .7029 | 0.124 | .7166 | 0.007 | .6770 | -0.009 | .6670 | -0.049 | .6421 | 0.190 | .733 |
| 0.100 | | 0.024 | .6883 | 0.067 | . 7008 | -0.040 | .6638 | -0.055 | .6538 | -0.094 | .6288 | 0.124 | .71 |
| 0.149 | | -0.091 | .6565 | -0.051 | .6682 | -0.153 | .6322 | -0.169 | .6214 | -0.210 | .5948 | -0.002 | .680 |
| 0.229 | | -0.248 | .6132 | -0.211 | .6243 | -0.315 | .5867 | -0.339 | .5730 | -0.406 | .5374 | -0.171 | .633 |
| 0.320 | | -0.318 | .5939 | -0.287 | .6033 | -0.382 | .5677 | -0.413 | .5519 | -0.543 | .4969 | -0.264 | .608 |
| 0.390 | | -0.282 | .6040 | -0.260 | .6108 | -0.331 | .5821 | -0.355 | .5685 | -0.423 | .5322 | -0.251 | .61 |
| 0.459 | | -0.195 | .6280 | -0.181 | .6325 | -0.229 | .6108 | -0.245 | .5997 | -0.292 | .5708 | -0.184 | .63 |
| 0.539 | | -0.058 | .6657 | -0.051 | .6684 | -0.080 | .6527 | -0.091 | .6437 | -0.122 | .6206 | -0.063 | .66 |
| 0.640 | 201.33 | 0.102 | .7099 | 0.104 | .7109 | 0.089 | .7000 | 0.081 | .6926 | 0.057 | .6733 | 0.084 | . 704 |
| 0.740 | 100 | 0.244 | .7492 | 0.243 | .7492 | 0.236 | .7413 | 0.229 | .7347 | 0.209 | .7177 | 0.217 | .74 |
| 0.859 | Sarl | 0.350 | .7784 | 0.345 | .7776 | 0.345 | .7718 | 0.337 | .7654 | 0.314 | .7488 | 0.308 | . 766 |
| 0.952 | | 0.284 | .7600 | 0.267 | .7560 | 0.280 | .7536 | 0.267 | .7454 | 0.225 | .7227 | 0,188 | .73 |

Table 3.6 DFVLR 1 x 1 Meter tests. Boundary layer data.

| | | | | | | | | | | 1 | | | | | |
|-----------|-------------------------------------|---------|---------------------|----------|--------------------|-------|---|-----------|------------------|---------------------|---------|---------------------|-------------------|--------------------|--------|
| 180N 159 | MA=0.764 ALPA BE=0.24E 07 | = 2,52 | PINF=375 | .3 PO=55 | 2.3 To= | 305.1 | | 180N 158 | MA=0.7 RE=0.2 | | = 2.52 | PIMP=375 | .3 PO=5 | 52.4 TO= | 304-8 |
| | 5500 ZE= 5.528 | | | | | | 1 | 1 X/C= 0. | 5000 ZE | = 5.527 | | | | | |
| IDEL = 2. | 362 DEL = 0.794 ANCES (MM) U(M/S | 4 THETA | ≈ 0.3520 G) T(DE | H=2.25 | CP=0.0 | 0154 | | DEL= 2. | 423 DEL | •= 0.917) U(M/S | 9 THETA | = 0.3789 G) T(DE | H=2-42 G.K) AL | 7 CF=0.0 | 0122 |
| 1 | OUNLARY LAYER PR | | | SURPACI | | | 1 | 1 | | | | | | E PRESSOR | |
| 1 | | | 11 | | | | 1 | 1 | | СРВ | | 11 | | | nL |
| 1 Z | PT/PG CPB | U/UE | MB 11 | UPPER SI | CP | HL | 1 | 1 Z | PT/PO | CPB | OVOE | | UPPER S | IDE | |
| 1 0.0 | 0.5701 -0.3934 | | 0.0 11 | 0.0 | 1.1265 | 0.106 | | 1 0.0 | | -0.4152 | | 0.0 11 | | 1, 1277 | 0.103 |
| 0.070 | 0.6107 -0.3930 0.6243 -0.3927 | 0.3663 | 0.31411 | | 0.4749 | | | 0.070 | | -0.4148 | 0.3237 | | 0.0080 | 0.4756 -0.2030 | 0.555 |
| 1 0.187 | 0.6330 -0.3925 | 0.4507 | 0.38911 | | 0.1442 | | | 0.192 | | -0.4142 | 0.3773 | 0.32611 | | 0.1462 | 0.701 |
| 1 0.258 | 0.6487 -0.3922 | 0.4997 | 0.43211 | | -0.4453 | 0.956 | | 1 0.252 | | -0.4139 | 0.4072 | 0. 35211 | | -0.4456 | 0.956 |
| 1 0.302 | 0.6505 -0.3920 | 0.5047 | 0.43711 | | -0.5779 | 1.015 | | 1 0.315 | | -0.4135 -0.4132 | 0.4208 | 0.36411 | 0.0400 | -0.5793 -0.7330 | 1.016 |
| 1 0.523 | 0.6707 -0.3909 | 0.5584 | 0.46311 | | -0.7325 -0.9492 | 1-087 | | 0.367 | | -0.4130 | 0.4580 | 0.39711 | | -0.9493 | 1. 194 |
| 0.638 | 0.6775 -0.3903 | | | 0.1000 | -0.9954 | 1.218 | | 0.513 | | -0.4124 | 0.4712 | 0.40911 | 0.1000 | -0.9958 | 1.218 |
| 1 0.761 | 0.6922 -0.3898 | 0.6085 | 0.53111 | | -1.0333 | 1.238 | 1 | 1 0.629 | | -0.4118 | 0.4960 | 0.43211 | | -1.0321 | 1.237 |
| 1 0.858 | 0.7047 -0.3893 | 0.6350 | 0.55611 | | -1.0712 -1.0657 | 1.258 | | 0.737 | | -0.4112 | 0.5167 | 0.45011 | | -1.0683 -1.0625 | 1.256 |
| 1 1. 120 | 0.7362 -0.3888 | 0.6956 | 0.61311 | | -1.0716 | 1.258 | | 0.961 | | -0.4100 | 0.6020 | 0.52911 | | -1.0697 | 1.257 |
| 1 1.194 | 0.7500 -0.3900 | 0.7205 | 0.63611 | | -1.0792 | 1.262 | | 1 1.080 | 0.7012 | -0.4140 | 0.6416 | 0.56511 | 0.3000 | -1.0772 | 1.261 |
| 1 1.306 | 0.7682 -0.3920 | 0.7513 | 0.66611 | | -1.0602 | 1.252 | | 1 1.188 | | -0.4124 | 0.6581 | | 0.3400 | -1.0638 | 1.254 |
| 1 1.418 | 0.7879 -0.3939 0.8125 -0.3934 | 0.7824 | 0.69611 | 0.4200 | -1.0625 -0.9732 | 1.253 | | 1 1.300 | | -0.4109 | 0.7201 | 0.64011 | 0.4200 | -1.0630 -0.9390 | 1.253 |
| 1 1.646 | 0.8426 -0.3937 | 0.8555 | 0.76911 | | -0.5116 | 0.985 | | 1.546 | | -0.4146 | 0.7885 | | 0.4600 | -0.5211 | 0.990 |
| 1 1.769 | 0.8700 -0.3941 | 0.8880 | 0.80111 | 0.5000 | -0.4291 | 0.949 | 1 | 1 1.632 | 0.8016 | -0.4159 | 0.8091 | 0.72711 | 0.5000 | -0.4152 | 0.943 |
| 1 1.877 | 0.8953 ~0.3928 | 0.9152 | 0.82911 | | -0.3959 | 0.934 | | 1 1.740 | | -0.4166 | 0.8440 | | 0.5400 | -0.3918 | 0.932 |
| 1 2.123 | 0.9248 ~0.3914 | 0.9447 | 0.86011 | | -0.3860 -0.3752 | 0.930 | | 1 1.867 | | -0.4137 -0.4107 | 0.8776 | | 0.5800 | -0.3922 -0.3928 | 0.933 |
| 1 2.235 | 0.9663 -0.1913 | 0.9837 | | 0.6600 | -0.3548 | 0.916 | | 2.095 | | -0.4105 | 0.9288 | 0.84911 | | -0.3716 | 0.924 |
| 1 2.362 | 0.9795 -0.3902 | 0.9949 | 0.91311 | 0.7000 | -0.3134 | 0.898 | 1 | 2.188 | | -0.4077 | 0.9519 | | 0.7000 | -0.3317 | 0.906 |
| 1 2.474 | 0.9861 -0.3891 | 1.0002 | 0.91911 | | -0.2327 | 0.963 | | 1 2.300 | | -0.4053 | 0.9708 | 0.89311 | 0.7500 | -0.2513 -0.1369 | 0.871 |
| 1 3.735 | | 1.0039 | 0.92311 | | -0.1315 -0.0185 | 0.820 | | 1 2.423 | | -0.4062 | 0.9981 | | 0.8500 | -0.0171 | 0.771 |
| 1 5.608 | 0.9944 -0.1680 | 0.9986 | 0.91711 | | 0.0859 | 0.727 | | 1 2.647 | | -0.4016 | 1.0001 | 0.92511 | 0.9000 | 0.0911 | 0.725 |
| 1 7.459 | 0.9924 -0.3635 | 0. 1951 | 0.91311 | 0.9500 | 0.1742 | | | 1 3.785 | | -0.3970 | 1.0009 | | 0.9500 | 0.1769 | 0.688 |
| 1 9.485 | 0.9880 ~0.3600 0.9854 ~0.3571 | 0.9898 | 0.90811 | | 0.2097 | | | 1 5.670 | | -0.3902 -0.3832 | 0.9980 | | 1.0000 | 0.2108 | 0.673 |
| 113.534 | 0.9843 -0.3542 | 0.9842 | | LOWER S | | 0.661 | | 111.248 | | -0.3711 | 0.9836 | | LOWER S | | 0.001 |
| 114.952 | | 0.9831 | 0.90011 | 1.0000 | 0.2389 | | 1 | 115.143 | 0.9815 | -0.3589 | 0.9781 | | 1.0000 | 0.2383 | 0.661 |
| | 0.9836 -0.3454 | 0.9799 | 0.89711 | | | 0.584 | | 118.692 | 0.9824 | | 0.9746 | | 0.9500 | 0.4081 | 0.586 |
| 122.396 | 0.9832 ~0.3388 0.9835 ~0.3310 | 0.9769 | 0.89411 | | 0.4550 | 0.564 | | 122.636 | | -0.3314 -0.3233 | 0.9678 | | 0.9000 | 0.4557 | 0.564 |
| | 0.9842 -0.3224 | 0. 9709 | 0.88711 | | 0.4222 | 0.579 | | 129.975 | | -0.3133 | 0.9635 | | 0.8000 | 0.4248 | 0.578 |
| 133.731 | 0.9844 -0.3155 | 0.9683 | 0.88511 | 0.7500 | 0.3672 | 0.604 | 1 | 133.651 | 0.9880 | -0.3056 | 0.9619 | 0.88411 | 0.7500 | 0.3693 | 0.603 |
| | 0.9856 -0.3109 | | 0.88411 | | | | | | | -0.2980 | 0.9597 | | 0.6500 | 0.2472 | 0.658 |
| 140.758 | 0.9869 -0.3047 | 0.9000 | | 0.4500 | 0.1075 | 0.718 | | 140.020 | 0.9897 | -0.2922 | 0.9578 | | 0.4500 | -0.0331 | 0.778 |
| | | | | 0.3500 | -0.1233 | | | | | | | | 0.3500 | -0.1225 | 0.816 |
| 1 | | | 11 | 0.2500 | -0.1035 | 0.808 | 1 | i | | | | | 0.2500 | -0.1035 | 0.808 |
| ! | | | | 0.2000 | -0.0358 | 0.779 | | ! | | | | | 0.2000 | 0.0514 | 0.779 |
| ; | | | | 0.1500 | 0.0499 | 0.743 | | 1 | | | | | 0.1500 | 0. 1667 | 0.693 |
| i | | | | 0.0500 | 0.2845 | 0.641 | | 1 | | | | | 0.0500 | 0.2846 | 0.641 |
| 1 | | | 11 | 0.0200 | 0.3813 | 0.598 | 1 | i | | | | 11 | 0.0200 | 0.3813 | 0.598 |
| 1 | | | | 0.0080 | | 0.561 | | ! | | | | | 0.0080 | 0.4615 | 0.561 |
| 1 | | | | 0.0040 | | 0.430 | | ! | | | | | 0.0040 | 1. 1277 | |
| 1 | | | | | | | i | i | | | | | | | |
| 1 RUN 157 | MA=0.765 ALPA | = 2.51 | PINF=375 | .0 PO=5 | 52.6 TO= | 304.4 | | IRUN 160 | MA=0. | 764 ALFA | ≈ 2.52 | PINF=375 | 4 PO=5 | 552.5 TO: | 302.8 |

| IRUN | 157 | MA=0. | 765 | ALPA= | 2.51 | PINI | = 375.0 | PC | =552. | 6 TO | = 304_4 |
|-------|-------|-------|-----|---------|---------|--------|----------|------|-------|--------|---------|
| 1 | | RE=O. | 242 | 07 | | - | | | | | |
| 11/C= | 0.48 | 00 Z | E= | 4.425 | #E=0.95 | 53 (| JE= 306. | 63 | CPE=- | 0.406 | 9 |
| DEL= | 2.61 | 8 DE | L.= | 0.9411 | THET | A = 0. | 3703 | H=2. | 542 | CP=0. | 00108 |
| 1 (0 | ISTAN | CES (| Ħ) | U (#/S) | P (HH | HG) | T (DEG. | K) | ALPA | DEG. 1 |) |

| Z | SURPACE PRESSURES | | | | |
|--|-------------------|--|--|--|--|
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | HL | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | 7 0.116 | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | |
| 0.473 | | | | | |
| 0.517 0.6196 -0.4678 0.4678 0.4663 0.4611 0.1800 -1.025 0.573 0.6195 -0.4658 0.4663 0.4616 0.1800 -1.063 0.637 0.6304 -0.4639 0.5000 0.4471 0.2200 -1.056 0.637 0.6304 -0.4639 0.5000 0.4471 0.2200 -1.056 0.637 0.6488 -0.4638 0.5000 0.4471 0.3000 -1.057 0.672 0.6622 -0.4568 0.5752 0.4711 0.3000 -1.057 0.772 0.6622 -0.4568 0.5752 0.4711 0.3000 -1.057 0.7800 0.6600 -0.4501 0.6109 0.5521 0.3800 -1.057 0.7800 -1.057 0.7800 -1.057 0.7800 -1.057 0.7800 -0.4700 -0.4700 -0.579 0.4600 -0.579 0.4600 -0.579 0.4600 -0.579 0.4600 -0.579 0.4600 -0.579 0.4500 -0.579 0.4500 -0.579 0.4500 -0.579 0.4500 -0.47000 -0.47000 -0.47000 -0.47000 -0.47000 | | | | | |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | |
| 0.637 | | | | | |
| 0.689 0.6315 -0.4021 0.5014 0.4481 0.2600 -1.063 0.741 0.408 0.4608 0.5256 0.4711 0.3000 -1.067 0.472 0.6622 -0.4568 0.5752 0.5181 0.3400 -1.067 0.7472 0.6622 -0.4568 0.5752 0.5181 0.3400 -1.057 0.7472 0.6602 -0.4501 0.109 0.5521 0.3800 -1.056 0.5671 0.4200 -0.380 0.606 -0.4312 0.7627 0.5591 0.4200 -0.380 0.5671 0.4200 -0.591 0.4600 -0.519 0.5912 0.4600 -0.519 0.5912 0.5901 0 | | | | | |
| 0.741 | | | | | |
| 0.984 | | | | | |
| 0.984 | | | | | |
| 1.081 | | | | | |
| 1.185 | | | | | |
| 1.305 0.7365 -0.4312 0.7025 0.641 0.5000 -0.426 | | | | | |
| 1.417 0.7606 -0.4330 0.7417 0.680 0.5400 -0.392 1.525 0.7840 -0.4339 0.7762 0.714 0.5800 -0.395 1.697 0.8321 -0.4424 0.8420 0.782 0.6200 -0.392 1.676 0.8853 -0.4396 0.8991 0.842 0.6600 -0.373 2.047 0.9212 -0.4994 0.3942 0.880 0.7000 -0.335 2.238 0.9536 -0.4429 0.9648 0.914 0.7500 -0.394 2.439 0.9903 -0.474 0.9948 0.951 0.8500 -0.138 2.439 0.9903 -0.4369 0.9925 0.945 0.8500 -0.18 2.618 0.9898 -0.4369 0.9925 0.945 0.8500 -0.018 3.741 0.9934 -0.4151 0.9868 0.938 0.9000 0.087 3.754 0.9929 -0.1935 0.9778 0.928 0.9500 0.13 | | | | | |
| 1.525 0.7840 -0.4339 0.7762 0.714 0.5860 -0.395 1.697 0.4321 -0.4424 0.9820 0.782 0.6260 -0.392 1.676 0.8853 -0.4396 0.8991 0.842 0.6660 -0.373 1.2047 0.9212 -0.4394 0.9342 0.8861 0.7000 -0.313 1.2047 0.9212 -0.4394 0.9342 0.914 0.7500 -0.249 1.2048 0.9536 -0.4429 0.9648 0.914 0.7500 -0.249 1.2049 0.9901 -0.4374 0.9848 0.936 0.8500 -0.088 1.741 0.9938 -0.4369 0.9925 0.945 0.8500 -0.018 1.741 0.9938 -0.4151 0.9868 0.938 0.9500 0.087 1.771 0.9929 -0.3935 0.9778 0.928 0.9500 0.133 1.771 0.9929 -0.3935 0.9778 0.928 0.9500 0.133 | | | | | |
| 1.697 0.8321 0.4424 0.8420 0.7821 0.6200 0.392 0.8921 0.6600 0.373 0.2007 0.9212 0.4396 0.8991 0.8421 0.6600 0.373 0.2007 0.9212 0.4394 0.9342 0.8801 0.7000 0.335 0.238 0.9536 0.4429 0.9648 0.9141 0.7500 0.238 0.2439 0.9901 0.8000 0.138 0.2439 0.8000 0.138 0.2439 0.8000 0.018 0.2439 0.9381 0.8000 0.018 0.8000 0.9381 0.9381 0.9000 0.838 0.9381 0.9500 0.138 0.9500 0.138 0.9500 0.9381 0.9500 0.138 0.9500 0.9500 0.138 0.9500 0.9500 0.138 0.9500 0.9500 0.138 0.9500 0.950 | | | | | |
| 1.676 0.8853 -0.4396 0.8991 0.842 0.6600 -0.373 2.047 0.9412 -0.4994 0.9342 0.8891 0.7000 -0.335 2.238 0.9536 -0.4429 0.9648 0.914 0.7500 -0.249 2.439 0.9901 -0.4378 0.9898 0.936 0.8500 -0.388 2.618 0.9898 -0.4369 0.9925 0.945 0.8500 -0.018 3.741 0.9938 -0.4151 0.9868 0.938 0.9000 0.087 5.771 0.9929 -0.3935 0.9778 0.928 0.9500 0.133 | | | | | |
| 2.047 | | | | | |
| 2.238 0.9536 -0.4429 0.9648 0.914 0.7500 -0.249 | | | | | |
| 2.439 | | | | | |
| 2.618 | | | | | |
| 3.741 | | | | | |
| 5.771 0.9929 -0.3935 0.9778 0.92811 0.9500 0.173 | | | | | |
| | | | | | |
| 1 7.805 0.9901 -0.3787 0.9696 0.91911 0.9750 0.209 | | | | | |
| 9.267 0.9869 -0.3689 0.9630 0.91211 1.0000 0.236 | | | | | |
| 111-405 0.9833 -0.3518 0.9532 0.90111 LOWER SIDE | | | | | |
| 13.051 0.9819 -0.3408 0.9475 0.89511 1.0000 0.236 | 6 0.663 1 | | | | |
| 15-182 0.9812 -0.3272 0.9414 0.88811 0.9500 0.411 | | | | | |
| 18.988 0.9818 -0.3086 0.9344 0.88011 0.9000 0.450 | | | | | |
| 22.435 0.9829 -0.2918 0.9286 0.87411 0.8500 0.446 | | | | | |
| 126.402 0.9841 -0.2851 0.9269 0.87211 0.8000 0.419 | | | | | |
| 130.152 0.9851 -0.2767 0.9245 0.87011 0.7500 0.365 | | | | | |
| 133.532 0.9862 -0.2761 0.9252 0.87011 0.6500 0.242 | 4 0.661 1 | | | | |
| 137.260 0.9873 -0.2751 0.9258 0.87111 0.5500 0.105 | 5 0.720 1 | | | | |
| 139.935 0.9883 -0.2735 0.9261 0.87111 0.4500 -0.032 | 9 0.779 1 | | | | |
| 11 0.3500 -0.119 | 5 0.816 1 | | | | |
| 11 0.2500 -0.096 | | | | | |
| 11 0-2000 -0.026 | | | | | |
| 11 0.1500 0.060 | | | | | |
| 1 0.1000 0.175 | | | | | |
| 11 0.0500 0.292 | | | | | |
| 11 0.0200 0.367 | | | | | |
| 11 0.0080 0.465 | | | | | |
| 1 0.0040 0.719 | | | | | |
| 11 0.0 1.121 | 7 0.116 1 | | | | |

| RUN | 160 MA | =0.764 | ALFA | 2.52 P | INF=375.4 | PO=552. | 5 TO=302.8 |
|-------|--------|--------|--------|----------|-----------|----------|------------|
| 1 | | =0.24E | | | | | |
| IX/C= | 0.6000 | -32 | 5, 693 | ME=0.916 | UE=295. | 73 CPE=- | 0.3558 |
| DEL= | 2.841 | DEL .= | 0.7979 | THETA= | 0.3823 | H=2.087 | CF=0.00188 |

| (DIST | ANCES (M | n) n(n/s |) P(nn) | (G) T(DE | G.K) AL | PA (DEG.)) | |
|--------|----------|----------|---------|----------|---------|------------|-------|
| E | BOUNDARY | LAYER PE | OPILES | !! | SURPAC | E PRESSUR | ES |
| z | PT/PO | CPB | U/UE | MB II | | CP | ML |
| 0.0 | 0 5781 | -0.1798 | 0.0 | 0.0 11 | | 1.1279 | 0.103 |
| 0.070 | 0.6222 | -0.3794 | 0.3972 | 0.34111 | | 0.4752 | 0.555 |
| 0.098 | | -0.3794 | 0.4624 | 0.39811 | | -0.2058 | 0.852 |
| 0.143 | | -0.3792 | 0.4999 | 0.43211 | | 0.1444 | 0.702 |
| 0.202 | | -0.3790 | 0.5202 | 0.45011 | | -0.4465 | 0.956 |
| 0.255 | | -0.3788 | 0.5513 | 0.47811 | | -0.5780 | 1.015 |
| 0.314 | | -0.3786 | 0.5673 | 0.49211 | | -0.7324 | 1.087 |
| 0.464 | | -0.3780 | 0.5951 | 0.51811 | | -0.9477 | 1.192 |
| 0.538 | | -0.3777 | 0.6183 | 0.53911 | | -0.9932 | 1.216 |
| 0.654 | | -0.3773 | 0.6315 | 0.55111 | | -1.0299 | 1.235 |
| 0.766 | | -0.3769 | 0.6571 | 0.57511 | | -1.0666 | 1.255 |
| 0.889 | 0.7292 | -0.3764 | 0.6757 | 0.59311 | | -1.0619 | 1.253 |
| 0.990 | | -0-3735 | 0.6879 | 0.60411 | | -1.0654 | 1.254 |
| 1.091 | | -0.3722 | 0.7095 | 0.62411 | | -1.0741 | 1.259 |
| 1.214 | | -0-1733 | 0.7347 | 0.64911 | | -1.0564 | 1.250 |
| 1.341 | | -0.3761 | 0.7634 | 0.67611 | | -1.0591 | 1.251 |
| 1.434 | | -0.3754 | 0.7854 | 0.69711 | | -0.9754 | 1.207 |
| 1.535 | | -0.3785 | 0.8100 | 0.72211 | | -0.5138 | 0.986 |
| 1.620 | | -0.3783 | 0.8300 | 0.74111 | | -0.4303 | 0.949 |
| 1.725 | | -0.3801 | 0.8481 | 0.75911 | | -0.4004 | 0.936 |
| 1.837 | | -0.3811 | 0.8702 | 0.78111 | | -0.3900 | 0.931 |
| 1.990 | | -0.3809 | 0.8968 | 0.80811 | | -0.3695 | 0.922 |
| 2.109 | | -0.3822 | 0.9179 | 0.83011 | | -0.1382 | 0.909 |
| 2.180 | 0.9126 | -0.3824 | 0.9302 | 0.84311 | | -0. 2947 | 0.890 |
| 2.262 | 0.9224 | -0.3824 | 0.9401 | 0.85311 | | -0.2141 | 0.855 |
| 2.367 | 0.9386 | -0.3824 | 0.9560 | 0.87011 | | -0.1215 | 0.816 |
| 2.594 | | -0.3839 | 0.9807 | 0.89611 | | -0.0160 | 0.771 |
| 2.781 | | -0.3800 | 0.9903 | 0.90611 | | 0.0830 | 0.729 |
| 2.841 | | -0.3786 | 0.9900 | 0.90511 | | 0.1674 | 0.692 |
| 2.982 | 0. 4866 | -0.3800 | 0.9987 | 0.91511 | 0.9750 | 0.2006 | 0.678 |
| 3.725 | 0.9943 | -0.3681 | 1.0005 | 0.91711 | 1.0000 | 0.2302 | 0.665 |
| 5,602 | 0.9936 | -0.3571 | 0.9953 | 0.91111 | LOWER S | IDE | |
| 7.475 | 0.9915 | -0.3533 | 0.9920 | 0.90811 | 1.0000 | 0.2302 | 0.565 |
| 9.624 | 0.9870 | -0.3496 | 0. 9865 | 0.90211 | 0.9500 | 0.4036 | 0.588 |
| 1.262 | 0.9845 | -0.3459 | 0.9829 | 0.89811 | 0.9000 | 0.4472 | 0.568 |
| 3.087 | 0.9828 | -0.3426 | 0.9799 | 0.89511 | 0.8500 | 0.4446 | 0.569 |
| 4.964 | 0.9824 | -0.3394 | 0.9782 | 0.89311 | 0.8000 | 0.4189 | 0.581 |
| 8.669 | 0.9825 | -0.3304 | 0.9745 | 0.88911 | 0.7500 | 0.3655 | 0.605 |
| 2.400 | 0.9834 | -0. 3223 | 0.9720 | 0.88611 | 0.6500 | 0.2441 | 0.659 |
| 6,173 | 0.9842 | -0.3143 | 0.9694 | 0.88411 | 0.5500 | 0.1088 | 0.717 |
| 9.855 | 0.9853 | -0.3052 | 0.9666 | 0.88111 | 0.4500 | -0.0339 | 0.778 |
| 13.594 | 0.9867 | -0.2958 | 0. 9640 | 0.87811 | 0.3500 | -0.1204 | 0.815 |
| 37.322 | | -0.2867 | 0.9615 | 0.87511 | 0.2500 | -0.0959 | 0.805 |
| 11.318 | 0.9895 | -0.2768 | 0.9586 | 0.87211 | 0.2000 | -0.0267 | 0.775 |
| | | | | 11 | | 0.0595 | 0.738 |
| | | | | 11 | 0.1000 | 0.1755 | 0.689 |
| | | | | 11 | 0.0500 | 0.2939 | 0.637 |
| | | | | 11 | 0.0200 | 0.3903 | 0.594 |
| | | | | - 11 | 0.0080 | 0.4707 | 0.557 |
| | | | | 11 | | 0.7120 | 0.437 |
| | | | | 11 | 0.0 | 1. 1279 | 0.103 |

Table 3.6 Continued

| REUN 161 | RA=0.765 | ALPA= 2.52 | PINF=375.2 | PO=552.7 | TO=304.0 | RE=0.24E 07 | IL/C= 0.7000 | ZE= 5.896 | RE=0.872 | UE=284.08 | CPE=-0.2427 | IDEL= 4.101 | DEL= 1.0479 | THETA= 0.5137 | H=2.040 | CF=0.00177 | (DISTANCES(RM) U(R/S) | P(RMEG) | T(DEG.K) | ALPA(DEG.) |

| 1 | | | | | | | | |
|---|---------|---------|--------|--|----------|--------|--------------------|-------|
| 1 | В | CUNDARY | LAYER | PROPILES | !! | | E PRESSUR | ES |
| | 2 | PT/PO | CPB | n\nx | 8B | I/C | CP | HL |
| i | 0.0 | 0.5988 | -0.287 | 5 0.0 | 0.0 | | 1. 1283 | 0.103 |
| | 0.070 | | -0.285 | | 0.3341 | | 0.4786 | 0.554 |
| | 0.108 | 0.6624 | -0.285 | | 0. 380 | | -0.2028 | 0.852 |
| | 0.153 | 0.6726 | -0.284 | 5 0.4941 | 0.40811 | | 0.1469 | 0.702 |
| i | | | -0.283 | 4 0.5143 | 0. 42511 | 0-0250 | -0.4456 | 0.957 |
| | 0.276 | | -0.282 | | 0.44311 | 0.0400 | -0.5801 | 1.018 |
| | 0.354 | | -0.280 | | 0.45811 | | -0.7312 | 1.088 |
| | 0.421 | 0.6983 | | | 0.46811 | | -0.9466 | 1.194 |
| 1 | | | -0.276 | | 0.48411 | | -0.9941 | 1.219 |
| 1 | | | -0.274 | | 0.49711 | | -1.0317 | 1.239 |
| 1 | | 0.7214 | | | 0.51311 | | -1.0692 | 1.259 |
| 1 | | | -0.270 | | 0.52711 | | -1-0631 | 1.256 |
| 1 | 1.08€ | 0.7386 | | | 0.54411 | | -1.0691 | 1.259 |
| | | 0.7439 | | | 0.55611 | | -1.0760 | 1.263 |
| 1 | | 0.7613 | | | 0.57511 | | -1.0626 | 1.255 |
| 1 | | 0.7613 | | | 0.58911 | | -1.0630 | 1.256 |
| 1 | | 0.7909 | | | 0.63611 | | -1.0171 -0.5987 | 1.231 |
| i | | 0.8101 | | | 0.66511 | | -0.5987 | 0.957 |
| 1 | 2.022 | 0.8279 | | | 0.69011 | | -0.4032 | 0.937 |
| i | | 0.8442 | | | 0.71211 | | -0.4032 | 0.934 |
| i | | 0.8690 | | | 0.74311 | | -0.3779 | 0.934 |
| 1 | 2.574 | 0.8849 | | | 0.76211 | | -0.3416 | 0.912 |
| i | 2.768 | 0.9053 | | | 0.78511 | | -0.2875 | 0.888 |
| i | 2.974 | | -0.271 | | 0.80811 | | -0.1959 | 0.849 |
| i | 3. 175 | 0.9465 | -0.269 | 8 0.9553 | 0.82811 | | -0.0956 | 0.806 |
| i | 3.336 | 0.9596 | -0.268 | | 0.84111 | | 0.0051 | 0.763 |
| j | 3.712 | 0.9826 | -0.262 | 4 0.9884 | 0.86111 | | 0.0978 | 0.723 |
| ı | | | -0.256 | | 0.86811 | 0.9500 | 0.1726 | 0.691 |
| | 4.470 | | -0.252 | | 0.86811 | | 0.2041 | 0.677 |
| 1 | | | -0.244 | | 0.86511 | | 0.2302 | 0.666 |
| 1 | | | -0.243 | | 0.86311 | | | |
| 1 | 9.365 | | -0.239 | | 0.85711 | | 0.2302 | 0.666 |
| | 11.164 | | -0.234 | | 0.85211 | | 0.4057 | 0.588 |
| | 13.056 | | -0.230 | | 0.84711 | | 0.4497 | 0.567 |
| | 15.063 | | -0.225 | | 0.84411 | | 0-4477 | 0.568 |
| | 18.768 | | -0.217 | | 0.84211 | | 0-4200 | 0.581 |
| | 26. 100 | 0.9843 | -0.206 | | 0.83811 | | 0.3664 | 0.605 |
| | 29.985 | 0.9858 | | | 0.83611 | | 0.2422 | 0.661 |
| | 33.683 | 0.9873 | | | 0.83411 | | 0.1066 | 0.719 |
| | 37.306 | 0.9899 | | | 0.83211 | | -0.0352 | 0.780 |
| | 41.063 | 0.9922 | | | 0.82911 | | -0.1245 -0.1016 | 0.818 |
| 1 | | | 0.107 | . 0. 7,003 | 0.02911 | | -0.0348 | 0.780 |
| 1 | | | | | 11 | | 0.0518 | 0.743 |
| i | | | | | 1 | | 0. 1655 | 0.694 |
| î | 1 | | | | 11 | | 0.2832 | 0.643 |
| i | 1 | | | | 11 | | 0.3781 | 0.600 |
| ì | 1 | | | | ii | | 0.4624 | 0.561 |
| 1 | 1 | | | | 11 | | 0.7174 | 0.435 |
| 1 | | | | | - 11 | 0.0 | 1.1283 | 0.103 |
| | | | | | | | | |
| | | | | The state of the s | | | | |

| RUN 163 | MA=0.764 | ALPA= 2.52 | PINF=375.5 | PO=552.7 | TO=302.3 | RE=0.24E 07 | IL/C= 0.4500 | ZE= 2.728 | ME=0.968 | UE=309.54 | CPE=-0.4829 |

| DEL= 2.208 DEL== 0.7859 THETA= 0.3242 H=2.424 CF=0.00133 | (DISTANCES(RR) U(M/S) P(MRHG) T(DEG.K) ALFA(DEG.))

| 1 | | BOUNDARY | LAYES PE | OPILES | !! | SURPAC | E PRESSUR | ES | ! |
|----|--------|----------|----------|----------|----------|--------|-----------|-------|---|
| ! | Z | PT/PO | CPB | U/UE | MB | | CP | HL | : |
| 1 | 0.0 | 0.5202 | -0.5733 | 0.0 | 0.0 11 | | 1.1195 | 0.118 | i |
| 1 | 0.070 | 0.5626 | -0.5649 | 0.3641 | 0.32711 | | 0.4691 | | i |
| 1 | 0.126 | 0.5725 | -0.5625 | 0.4012 | 0.36111 | 0.0080 | -0.2091 | 0.853 | i |
| 1 | 0.186 | 0.5697 | -0.5573 | 0.3841 | 0. 34511 | 0.0150 | 0.1414 | 0.704 | ì |
| 1 | 0.301 | 0.5832 | -0.5474 | 0.4239 | 0.38211 | 0.0250 | -0.4495 | | i |
| 1 | 0.421 | 0.6006 | -0.5371 | 0.4709 | 0.42611 | 0.0400 | -0.5840 | 1.018 | i |
| 1 | 0.536 | 0.6207 | -0.5271 | 0.5195 | 0.47111 | 0.0600 | -0.7363 | | i |
| 1 | 0.633 | | -0.5188 | 0.5593 | 0.50911 | 0.0800 | -0.9530 | | i |
| 1 | 0.742 | | -0.5094 | 0.5945 | 0.54311 | 0.1000 | -0.9966 | 1.218 | i |
| 1 | | 0.6831 | -0.4979 | 0.6391 | 0.58711 | 0.1400 | -1.0332 | 1.238 | i |
| 1 | 0.999 | 0.7049 | -0.4967 | 0.6783 | 0.62611 | | -1.0698 | 1.257 | i |
| 1 | 1.104 | | -0.5035 | 0.7258 | 0.67311 | | -1.0603 | 1.252 | i |
| 1 | 1.245 | 0.7594 | -0.5126 | 0.7729 | 0.72111 | 0.2600 | -1.0658 | 1.255 | i |
| 1 | 1.331 | 0.7914 | -0.5037 | 0.8108 | 0.76111 | | -1.0700 | 1.257 | i |
| 1 | 1.413 | | -0.5042 | 0.8369 | 0.7881 | | -1.0560 | 1.250 | i |
| 1 | 1.522 | 0.8291 | -0.5057 | 0.8568 | 0.80911 | | -1.0574 | 1.251 | i |
| 1 | 1.637 | 0.8619 | -0.4900 | 0.8849 | 0.83911 | | -0.8290 | 1.133 | 1 |
| 1 | 1.772 | 0.8884 | -0.4826 | 0.9084 | 0.86511 | 0.4600 | -0.4881 | 0.975 | i |
| 1 | 1.865 | 0.9058 | -0.4859 | 0.9264 | 0.88511 | | -0.4190 | 0.944 | i |
| ı | 2.007 | 0.9432 | -0.4778 | 0.9564 | 0.91811 | | -0.4029 | 0.937 | 1 |
| 1 | 2.104 | 0.9643 | -0.4752 | 0.9711 | 0.93711 | | -0.4151 | 0.943 | 1 |
| 1 | 2.208 | 0.9769 | -0.4825 | 0.9862 | 0.95211 | | -0.4127 | 0.942 | 1 |
| 1 | 2.305 | 0.9839 | -0.4978 | 0.9977 | 0.96511 | | -0.3977 | 0.935 | 1 |
| ١ | 2.406 | 0.9885 | -0.5121 | 1.0069 | 0.97611 | | -0.3573 | 0.917 | 1 |
| 1 | 2.581 | 0.9924 | -0.4796 | 0.9972 | 0.96411 | | -0.2617 | 0.876 | 1 |
| 1 | 2.757 | 0.9937 | -0-4780 | 0.9976 | 0.96511 | | -0.1366 | 0.822 | i |
| 1 | 2.969 | 0.9935 | -0.4685 | 0.9937 | 0.96011 | | -0.0147 | 0.770 | 1 |
| 1 | | 0.9938 | -0-4579 | 0.9899 | 0.95611 | | 0.0917 | 0.725 | 1 |
| 1 | 5.730 | 0.9937 | -0.4058 | 0.9694 | 0.93311 | | 0.1765 | 0.688 | 1 |
| ! | | 0.9932 | -0.3553 | 0.9493 | 0-91011 | | 0.2105 | 0.674 | 1 |
| ! | | 0 9883 | -0.3076 | 0.9265 | 0.88511 | | 0.2367 | 0.662 | 1 |
| | 11.197 | 0.9867 | -0.2843 | 0.9159 | 0.87311 | | | | 1 |
| | 13.055 | 0.9836 | -0.2709 | 0.9078 | 0. 86411 | | 0.2367 | 0.662 | 1 |
| | 15.316 | 0.9844 | -0.2531 | 0.9014 | 0.85711 | | 0.4057 | 0.587 | 1 |
| | 16.786 | 0.9829 | -0.2447 | 0.8967 | 0.85211 | | 0.4553 | 0.564 | 1 |
| | 22.533 | 0.9827 | -0.2483 | 0.3980 | 0.85411 | | 0.4519 | 0.566 | 1 |
| | 26.104 | 0.9834 | -0.2346 | 0.8931 | 0.8481 | | 0.4256 | 0.578 | ۱ |
| | 29.943 | 0.9855 | -0.2400 | 0.8893 | 0.84411 | | 0.3708 | 0.603 | 1 |
| | 33.589 | 0.9849 | -0.2489 | | 0.85311 | | 0-2490 | 0.657 | 1 |
| | 37.271 | 0.9851 | -0.2489 | 0.9002 | 0.85611 | | 0-1124 | 0.716 | 1 |
| | 39.186 | | -0.2483 | 0.9015 | 0.85511 | | -0.0288 | 0.776 | ۱ |
| ٠, | 37.100 | 0.9000 | -0.2403 | 0.9015 | 0.8571 | | -0.1169 | 0.814 | ١ |
| ! | | | | | !! | | -0.0942 | 0.804 | 1 |
| 1 | | | | | !! | | -0.0282 | 0.776 | 1 |
| 1 | | | | | !! | | 0.0575 | 0.740 | - |
| ! | | | | | !! | | 0.1704 | 0.691 | ! |
| 1 | | | | | !! | | 0.2872 | 0.640 | ! |
| ; | | | | | - 1 | | 0.3822 | 0.598 | ! |
| 1 | | | | | - 1 | | 0.7221 | 0.561 | ! |
| ; | | | | | - 1 | | 1. 1195 | 0-431 | ! |
| : | | | | Jan Land | | 0.0 | 1. 1195 | 0.118 | 1 |

| В | OUNDARY | LAYER PR | OFILES | - !! | | E PRESSUR | |
|--------|---------|----------|--------|----------|----------------|-----------|--------|
| z | PT/PO | CPB | U/UE | MB | I/C UPPER S | CP | HL |
| 0.0 | 0-4367 | -0.8741 | 0.0 | 0.0 11 | 0.0 | 1. 1202 | 0.117 |
| 0.070 | | -0.8609 | 0.4971 | 0.50511 | 0.0040 | 0.4697 | 0.557 |
| 0.108 | | -0.8570 | 0.5188 | 0.52911 | 0.0080 | -0.2065 | 0.852 |
| 0.134 | | -0.8529 | 0.5369 | 0.54811 | 0.0150 | 0.1427 | 0.703 |
| 0.157 | 0.5556 | -0.8494 | 0.5633 | 0.57711 | 0.0250 | -0.4494 | 0.958 |
| 0.201 | 0.5654 | -0.8423 | 0.5788 | 0.59411 | 0.0400 | -0.5826 | 1.017 |
| 0.246 | 0.5803 | -0.8352 | 0.6034 | 0.62111 | 0.0600 | -0.7338 | 1.088 |
| 0.287 | | -0.8288 | 0.6058 | 0.62311 | 0.0800 | -0.9538 | 1. 196 |
| 0.328 | 0.5976 | -0.8223 | 0.6270 | 0.64711 | 0.1000 | -0.9971 | 1.219 |
| 0.365 | 0.6043 | -0.8164 | 0.6348 | 0.65611 | 0.1400 | -1.0315 | 1.237 |
| 0.399 | | -0.8111 | 0.6527 | 0.67611 | 0.1800 | -1.0660 | 1.255 |
| 0.459 | | -0.8017 | 0.6729 | 0.69911 | 0.2200 | -1.0581 | 1.251 |
| 0.474 | | -0.7993 | 0.6737 | 0.70011 | 0.2600 | -1.0655 | 1.255 |
| 0.522 | | -0.7917 | 0.6874 | 0.71511 | 0.3000 | -1.0718 | 1.258 |
| 0.556 | | -0.7864 | 0.7039 | 0.73511 | 0.3400 | -1.0573 | 1.251 |
| 0.597 | | -0.7799 | 0.7251 | 0.75911 | | -1.0599 | 1.252 |
| 0.668 | | -0.7687 | 0.7571 | 0.79711 | 0.4200 | -0.8741 | 1.156 |
| 0.772 | | -0.7522 | 0.7897 | 0.83611 | | -0.4749 | 0.969 |
| 0.884 | | -0.7345 | 0.8336 | 0.88911 | | -0.4203 | 0.945 |
| 0.992 | | -0.7391 | 0.8761 | 0.94311 | 0.5400 | -0.4129 | 0.945 |
| 1. 115 | | -0.7565 | 0.9093 | 0.96511 | | -0.4228 | 0.946 |
| 1.216 | | -0.7600 | 0.9473 | 1.03511 | 0.6600 | -0.4129 | 0.942 |
| 1.440 | 0.9321 | -0.7593 | 0.9528 | 1.04211 | | -0.3686 | 0.922 |
| 1.556 | | -0.7886 | 0.9843 | 1.08411 | 0.7500 | -0.2629 | 0.877 |
| 1.668 | | -0.7548 | 0.9772 | 1.07511 | | -0.1345 | 0.822 |
| 1.80€ | | -0.8161 | 1.0084 | 1.11811 | | -0.0157 | 0.771 |
| 1.918 | | -0.8493 | 1.0225 | 1. 13711 | | 0.0890 | 0.726 |
| 2.657 | | -0.6981 | 0.9690 | 1.06411 | | 0.1707 | 0.691 |
| 3.802 | | -0.8809 | 1.0338 | 1. 15311 | | 0.2052 | 0.676 |
| 5.671 | 0.9903 | -0.8915 | 1.0364 | 1. 15711 | 1.0000 | 0.2331 | 0.664 |
| 7.593 | 0.9901 | -0.8820 | 1.0329 | 1. 15211 | LOWER S | IDE | |
| 9.373 | 0.9876 | -0.9089 | 1.0411 | 1.16311 | 1.0000 | 0.2331 | 0.664 |
| 1.231 | 0.9884 | -0.9251 | 1.0473 | 1. 17211 | | 0.4054 | 0.587 |
| 3.321 | | -0.9252 | 1.0474 | 1.17211 | | 0.4480 | 0.567 |
| 5.007 | 0.9884 | -0.9231 | 1.0466 | 1-17111 | | 0.4458 | 0.568 |
| 6.873 | | -0.9230 | 1.0466 | 1.17111 | | 0.4192 | 0.581 |
| 8.933 | | -0.9185 | 1.0455 | 1. 17011 | | 0.3676 | 0.604 |
| 2.448 | | -0.8991 | 1.0384 | 1.16011 | | 0.2465 | 0.658 |
| 6.179 | 0.9896 | -0.9114 | 1.0431 | 1. 16611 | | 0.1110 | 0.717 |
| 9.910 | | -0.9126 | 1.0437 | 1.16711 | | -0.0315 | 0.778 |
| 3.873 | 0.9894 | -0.8882 | 1.0347 | 1. 15411 | | -0.1195 | 0.815 |
| 7. 369 | 0.9887 | -0.8875 | 1.0341 | 1. 15411 | | -0-0967 | 0.805 |
| | | | | !! | | -0.0271 | 0.776 |
| | | | | !! | | 0.0595 | |
| | | | | !! | | 0. 1732 | 0.690 |
| | | | | - !! | | 0. 2908 | 0.597 |
| | | | | - 11 | | 0.4578 | 0.563 |
| | | | | 11 | | 0.7137 | 0.436 |
| | | | | 11 | 0.0040 | | |

Table 3.6 Continued

| RUN 165 | MA-0.764 | ALPA= 2.52 | PINF=376.0 | PO=553.5 | TO=304.0 | RE=0.24E 07 | IL/C= 0.4000 | ZE= 2.825 | ME=1.224 | UE=375.32 | CPE=-1.0132 | IDEL= 1.367 | DEL==0.3485 | THETA= 0.1541 | H=2.262 | CF=0.00273 | (DISTANCES(RN) | U(M/S) | P(RNHG) | T(DEG.K) | ALPA(DEG.1)

| - | | BOUNDARY | LAYER | PROPILES | 11 | SURPAC | E PRESSUR | ES |
|---|--------|----------|--------|----------|----------|----------------|--------------------|-------|
| | Z | PT/PO | CPB | Ø/UE | MB 11 | I/C OPPER S | CP | ML |
| i | 0.0 | 0.4154 | -0.950 | 3 0.0 | 0.0 | 0.0 | 1. 1235 | 0.111 |
| i | | 0.4992 | | | 0.52411 | 0.0040 | 0.4715 | 0.557 |
| i | | 0.5116 | | | 0.56011 | 0.0080 | -0.2080 | 0.853 |
| ì | | 0.5387 | | | 0.62911 | 0.0150 | 0.1395 | 0.704 |
| ì | | 0.5793 | | | 0.71611 | 0.0250 | -0.4490 | 0.958 |
| i | | 0.6021 | | | 0.75911 | 0.0400 | -0.5827 | 1.018 |
| 1 | 0.289 | 0.6093 | -0.967 | 9 0.6802 | 0.77311 | 0.0600 | -0.7312 | 1.086 |
| 1 | 0.330 | 0.6279 | -0.370 | 4 0.7055 | 0.80511 | 0.0800 | -0.9498 | 1.194 |
| 1 | | 0.6428 | | | 0.83111 | 0.1000 | -0.9948 | 1.218 |
| 1 | | 0.6567 | | | 0.85211 | 0.1400 | -1.0314 | 1.237 |
| 4 | | 0.6596 | | | 0.85711 | 0.1800 | -1.0680 | 1.257 |
| ١ | | 0.6804 | | | 0.88811 | 0.2200 | -1.0632 | 1.254 |
| 1 | | 0.6934 | | | 0-90711 | 0.2600 | -1.0687 | 1.257 |
| 4 | | 0.7157 | | | 0.93811 | 0.3000 | -1.0733 | 1.259 |
| 1 | | 0.7193 | | | 0 94311 | 0.3400 | -1.0613 | 1.253 |
| 4 | | 0.7477 | | | 0.97911 | 0.3800 | -1.0614 | 1.253 |
| 1 | | | -0.991 | | 1-00311 | 0.4200 | -0.8393 | 1.139 |
| 1 | | 0.7613 | -0.992 | | 1.01011 | 0.4600 | -0.4753 -0.4302 | 0.969 |
| 1 | | 0.7937 | -0.997 | | 1.03511 | 0.5400 | -0.4132 | 0.942 |
| 1 | | 0.8251 | | | 1.07011 | 0.5800 | -0.4204 | 0.945 |
| i | | 0.8462 | | | 1.09311 | 0.6200 | -0.4287 | 0.949 |
| i | | 0.8755 | | | 1. 13111 | 0.6600 | -0.4187 | 0.944 |
| i | | 0.8900 | | | 1. 14111 | 0.7000 | -0.3649 | 0.921 |
| i | | 0.9174 | | | 1.16711 | 0.7500 | -0.2536 | 0.873 |
| i | | | -1.019 | | 1. 18911 | 0.8000 | -0.1331 | 0.821 |
| i | | 0.9559 | | | 1.20411 | 0.8500 | -0.0119 | 0.769 |
| 1 | | 0.9699 | -1.020 | 2 0.9896 | 1.20811 | 0.9000 | 0.0937 | 0.724 |
| 1 | | 0.9857 | -1.015 | | 1.21811 | 0.9500 | 0.1781 | 0.688 |
| 1 | | 0.9920 | -1.011 | | 1. 22011 | 0.9750 | 0.2112 | 0.673 |
| ŧ | | | -1.025 | | 1.22811 | 1.0000 | 0.2406 | 0.661 |
| 1 | | | -1.010 | | 1.21811 | LOWER : | | |
| 1 | | | -1.011 | | 1-21811 | 1.0000 | 0-2406 | 0.661 |
| 1 | | 0.9875 | | | 1.20811 | 0.9500 | 0.4160 | 0.582 |
| ! | 7.614 | 0.9867 | -1.006 | | 1.20711 | 0.9000 | 0.4531 | 0.565 |
| | 15.065 | 0.9875 | | | 1.21811 | 0.8500 | 0.4483 | 0.567 |
| | 18.864 | 0.9882 | -0.997 | | 1.21011 | 0.7500 | 0.3659 | 0.605 |
| | 22.700 | | -0.987 | | 1.20511 | 0.6500 | 0.2419 | 0.660 |
| | 26.170 | | -0.973 | | 1. 19844 | 0.5500 | 0.1053 | 3.719 |
| | 30.173 | | -0.963 | | 1.19411 | 0.4500 | -0.0361 | 0.780 |
| | 33.886 | 0.9922 | -0.948 | | 1. 18811 | | -0.1235 | 0.817 |
| | 37.435 | 0.9931 | | | 1.17911 | 0.2500 | -0.1008 | 0.807 |
| i | | | | | 11 | 0.2000 | -0.0326 | 0.778 |
| 1 | | | | | ii | 0.1500 | 0.0550 | 0.741 |
| 1 | | | | | 41 | 0.1000 | 0.1710 | 0.691 |
| 1 | | | | | 11 | 0.0500 | 0.2876 | 0.640 |
| 1 | | | | | 14 | | 0.3836 | 0.597 |
| 1 | | | | | - 11 | 0.0080 | 0.4632 | 0.560 |
| 1 | | | | | 41 | | 0.7248 | 0.430 |
| 1 | | | | | 11 | | 1.1235 | 0.111 |
| | | | | | 11 | | | |

| (DIS | TANCES (M | 1) U(H/S) | P (MMH | G) T(DE | G.K) AL | FA (DEG.)) | |
|----------|-----------|-----------|---------|----------|----------------|--------------------|---------|
| | BOUNDARY | LAYER PRO | PILES | 11 | SURPAC | E PRESSUR | ES |
| Z | PT/PO | СРВ | U/UE | MB 11 | I/C UPPER S | CP | HL |
| 0.0 | 0.6542 | -0.0886 | 0.0 | 0.0 11 | 0.0 | 1. 1138 | 0-128 |
| 1 0.070 | | -0.0880 | 0.3673 | 0.27511 | 0.0040 | 0.4657 | 0.560 |
| 1 0.124 | | -0.0877 | 0.4028 | 0.30211 | 0.0080 | -0.2112 | 0.855 |
| 1 0. 199 | | -0.0871 | 0.4378 | 0.32911 | 0.0150 | 0.1385 | 0.706 |
| 1 0.27 | 0.7123 | -0.0866 | 0.4638 | 0. 34911 | 0.0250 | -0.4472 | 0.958 |
| 1 0.389 | | -0.0858 | 0.4952 | 0-37311 | 0.0400 | -0.5786 | 1.017 |
| 1 0.516 | | -0.0848 | 0.5167 | 0.39011 | 0.0600 | -0.7758 | 1.109 |
| 1 0.63 | | -0.0840 | 0.5337 | 0.40311 | 0.0800 | -0.9089 | 1.175 |
| 1 0.736 | | -0.0833 | 0.5491 | 0.41511 | 0.1000 | -0.9670 | 1.204 |
| 1 0.848 | | -0.0825 | 0.5660 | 0-42811 | 0-1400 | -1.0046 | 1.224 |
| 1 1.034 | | -0.0797 | 0.5963 | 0.45211 | 0.1800 | -1.0423 | 1.244 1 |
| 1 1.169 | | -0.0788 | 0.6186 | 0-47011 | 0.2200 | -1.0787 | 1.264 |
| 1 1. 381 | | -0.0775 | 0.6513 | 0-49611 | 0.2600 | -1.0518 | 1.249 1 |
| 1 1.546 | | -0.0778 | 0.6730 | 0.51311 | 0.3000 | -1.0623 | 1.255 |
| 1 1.762 | | -0.0777 | 0.7039 | 0.53811 | 0.3400 | -1.0583 | 1.253 |
| 1 1.941 | | -0.0778 | 0.7321 | 0-56111 | 0.3800 | -1.0542 | 1.251 |
| 1 2. 124 | | -0.0781 | 0.7597 | 0.58311 | 0.4200 | -1.0345 | 1.240 |
| 1 2.284 | | | 0.7788 | 0.59911 | 0-4600 | -0.5917 | 1.023 |
| 1 2.475 | | -0.0760 | 0.8056 | 0.62111 | 0.5000 | -0.4210 | 0.946 |
| 1 2.684 | | -0.0761 | 0.8349 | 0.64611 | 0.5400 | -0.4002 | 0.937 |
| 1 3.053 | | -0.0760 | 0.8796 | 0.68311 | 0.5800 | -0.3982 | 0.936 |
| | | -0.0755 | 0.9201 | 0.71811 | 0.6200 | -0.3828 | 0.930 1 |
| | | -0.0743 | 0.9557 | 0.74911 | 0.6600 | -0.3537 | 0.917 |
| 1 4.414 | | -0.0733 | 0.9906 | | 0.7000 | -0.2960 | 0.892 |
| 1 4.568 | | -0.0717 | 0.9948 | 0.78011 | 0.7500 | -0.1987 -0.0886 | 0.850 |
| 1 4.941 | | -0-0690 | 0.9989 | 0.78711 | 0.8500 | 0.0191 | 0.803 |
| 1 5. 799 | | -0.0640 | 0.9987 | 0. 78711 | 0.9000 | 0.1115 | 0.717 |
| 7.531 | | -0.0610 | 0.9955 | 0.78411 | 0.9500 | 0.1875 | 0.684 |
| 9.523 | | -0.0579 | 0.9889 | 0.77811 | 0.9750 | 0.2172 | 0.671 |
| 111. 325 | | | 0.9857 | 0.77511 | 1-0000 | 0-2415 | 0.661 |
| 113.154 | | -0.0546 | 0. 1843 | 0.77411 | LOWER S | | |
| 115. 135 | | -0.0531 | 0.1831 | 0.77311 | 1.0000 | 0.2415 | 0.661 |
| 117.131 | | -0.0522 | 0.9822 | 0.77211 | 0.9500 | 0-4047 | 0.588 |
| 118.840 | | -0.0520 | 0.9826 | 0-77311 | 0.9000 | 0.4429 | 0.570 |
| 120.598 | 0.9863 | -0.0508 | 0. 1825 | 0-77211 | 0.8500 | 0.4382 | 0.573 |
| 122.519 | 0.9871 | -0.0493 | 0.9827 | 0.77311 | 0.8000 | 0.4125 | 0.584 |
| 124.687 | 0.9882 | -0.0468 | 0.9828 | 0.77311 | 0.7500 | 0. 3629 | 0.607 |
| 126.478 | | -0.0445 | 0.9825 | 0.77211 | 0.6500 | 0.2442 | 0.660 |
| 128.363 | 0.9900 | -0.0426 | 0.9828 | 0.77311 | 0.5500 | 0.1068 | 0.719 |
| 130.001 | | -0.0412 | 0.9835 | 0.77311 | 0.4500 | -0.0288 | 0.777 |
| 131.796 | | -0.0403 | 0.9833 | 0.77311 | 0.3500 | -0.1123 | 0.813 |
| 133.650 | | -0.0396 | 0.9839 | 0.77411 | 0.2500 | -0-0947 | 0.805 |
| 135.553 | | -0.0401 | 0.9832 | 0.77311 | 0.2000 | -0.0235 | 0.775 |
| 136.325 | 0.9907 | -0.0407 | 0.9827 | 0.77311 | 0.1500 | 0-0645 | 0.737 |
| 1 | | | | - 11 | G.1000 | 0-1814 | 0.687 |
| 1 | | | | 11 | 0.0500 | 0.2908 | 0.639 |
| ! | | | | 11 | 0.0200 | 0.3847 | 0.597 |
| 1 | | | | - 11 | 0.0080 | 0.4758 | 0.555 1 |
| ! | | | | 11 | 0.0040 | 0.7166 | 0.435 1 |
| | | | | !! | 0.0 | 1.1138 | 0.128 |

| RUM 166 | MA=0.765 | ALFA= 2.52 | PIMP=374.8 | PO=552.3 | TO=304.8 | RE=0.24E 07 | IX/C= 0.3000 | ZE= 1.900 | RE=1.249 | UE=381.52 | CPE=-1.0548 | IDEL= 1.320 | DEL= 3.3369 | THETA= 0.1452 | H=2.320 | CP=0.00267 | (DISTANCES(RM) | U(R/S) | Y(RMHG) | T(DEG.K) | ALFA(DEG.) |

| ! | (DIST | ANCES (MM |) 0 (H/S) | P (BBH | PA (DEG.)) | | : | | |
|---|---------|-----------|-----------|--------|------------|---------|-----------|-------|-----|
| i | В | OUNDARY | LAYER PRO | PILES | | | E PRESSOR | Es | i |
| i | Z | PT/PC | CPB | U/UE | #B | I/C | CP | ML | i |
| i | 0.0 | 0.3789 | -1-0776 | 0.0 | 0.0 I | | 1. 1274 | 0.105 | i |
| i | 0.070 | 0.5385 | | 0.6327 | 0.7251 | | 0.4776 | 0.554 | 1 |
| i | 0- 100 | 0.5560 | -1.0750 | 0.6592 | 0.7591 | 0.0080 | -0.2040 | 0.852 | 1 |
| i | 0.130 | 0.5443 | | 0.6410 | 0.7361 | 0.0150 | 0. 1470 | 0.702 | |
| 1 | 0.193 | 0.5686 | -1.0726 | 0.6758 | 0.7801 | 0.0250 | -0.4408 | 0.955 | |
| ì | 0.238 | 0.5781 | | 0.6881 | 0.7961 | 0.0400 | -0.5748 | 1.015 | 1 |
| 1 | 0.283 | 0.5900 | -1.0703 | 0.7030 | 0.8161 | 0.0600 | -0.7281 | 1.087 | |
| 1 | 0.316 | 0.6149 | | 0.7329 | 0.8561 | | -0.9462 | 1.194 | 1 |
| 1 | 0.354 | 0.6266 | | 0.7457 | 0.8731 | | -0.9925 | | |
| 1 | 0.432 | 0.6448 | | 0.7644 | 0.8981 | | -1.0308 | 1.239 | 1 |
| 1 | 0.503 | 0.6616 | | 0.7807 | 0.9201 | | -1.0690 | 1.259 | |
| 1 | 0.585 | 0.6971 | | 0.8131 | 0.9661 | | -1.0623 | 1.256 | |
| 1 | 0.663 | 0.7350 | | 0.8444 | 1.0101 | | -1.0715 | 1.261 | |
| 1 | 0.746 | 0.7769 | | 0.8754 | 1.0551 | | -1.0776 | 1.264 | |
| 1 | 0.801 | 0.7904 | | 0.8844 | 1.0691 | | -1.0566 | | 1 |
| 1 | 0.872 | 0.8105 | | 0.8975 | 1.0881 | | -1.0591 | | |
| 1 | 0.966 | | -1.0526 | 0.8965 | 1.0871 | | -0.7784 | 1.111 | 1 |
| 1 | 1.029 | | -1.0509 | 0.9503 | 1.1691 | | -0.5208 | 0.991 | ! |
| | 1.104 | 0.9239 | | 0.9640 | 1. 1911 | | -0.4572 | 0.963 | 1 |
| 1 | 1.246 | 0.9567 | -1.0554 | 0.9822 | 1. 2201 | | -0.4950 | 0.979 | i |
| 1 | 1. 320 | 0.9367 | | 0.9904 | 1.2331 | | -0.4840 | 0.975 | 1 |
| | 1. 395 | 0.9806 | | 0.9954 | 1. 2411 | | -0.4258 | | i |
| 1 | 1.469 | 0.9853 | | 0.9982 | 1.2461 | | -0.3497 | 0.915 | i |
| i | 1.682 | 0.9942 | | 1.0020 | 1. 2521 | | -0.2330 | 0.865 | i |
| 1 | 1.913 | | -1.0508 | 0.9976 | 1. 2451 | | -0.1053 | 0.810 | i |
| i | 2.081 | 0.9928 | | 0.9973 | 1. 2444 | | 0.0145 | 0.759 | i |
| i | 2.253 | 0.9917 | | 0.9969 | 1. 2441 | | 0.1082 | 0.719 | i |
| i | 2.462 | 0.9910 | | 0.9967 | 1.2431 | | 0.1777 | 0.689 | i |
| i | 2.652 | | -1.0525 | 0.9963 | 1. 2431 | | 0.2044 | 0.677 | i |
| i | 3.040 | | -1.0575 | 0.9977 | 1.2451 | | 0.2283 | 0.667 | 1 |
| 1 | 3.772 | 0.9905 | -1.3600 | 0.9991 | 1.2471 | LOWER S | IDE | | 1 |
| 1 | 5.634 | 0.9919 | -1.0620 | 1.0004 | 1. 2491 | 1.0000 | 0.2283 | 0.667 | 1 |
| 1 | 7.566 | 0.9921 | -1-0445 | 0.9947 | 1.2401 | 0.9500 | 0.4095 | 0.586 | 1 |
| 1 | 9,365 | 0.9917 | -1.0321 | 0.9904 | 1. 2331 | 0.9000 | 0.4547 | 0.565 | 1 |
| | 11.458 | | -1.0302 | 0.9901 | 1.2331 | | 0.4534 | 0.566 | 1 |
| | 15.204 | 0.9930 | | 0.9852 | 1.2251 | | 0.4295 | 0.577 | - |
| | 18,913 | 0.9930 | | 0.9795 | 1-2151 | | 0.3743 | 0.602 | 1 |
| | 22.499 | 0.9928 | | 0.9733 | 1.2051 | | 0.2475 | 0.658 | 1 |
| | 26. 148 | | -0.9628 | 0.9680 | 1.1971 | | 0.1008 | 0.722 | 1 |
| | 31.563 | | -0.3442 | 0.9623 | 1. 1881 | | -0.0465 | 0.785 | |
| | 34.884 | 0.9940 | | 0.9571 | 1.1801 | | -0.1372 | 0.824 | , |
| 1 | 36.757 | 0.9940 | -0.9172 | 0.9539 | 1. 1751 | | -0.1155 | 0.815 | |
| 1 | | | | | 1 | | -0.0442 | 0.784 | ! |
| 1 | | | | | . ! | | 0.0441 | 0.746 | |
| | | | | | ! | | 0.1602 | 0.696 | ! |
| ! | | | | | ! | | 0.2799 | 0.644 | 1 |
| : | | | | | 1 | | 0.4590 | 0.563 | i |
| 1 | | | | | 1 | | 0.4390 | 0.430 | 1 |
| : | | | | | 1 | | 1. 1274 | 0.105 | 1 |
| : | | | | | | 1 | | | - : |
| • | | | | | | | | | |

| (DIST | ANCES (MM |) U(M/S |) P(MMH | G) T (DE | G.K) AL | FA (DEG.)) | |
|--------|-----------|----------|---------|----------|----------------|------------|-------|
| В | OUNDARY | LAYER PR | OFILES | 11 | SURPAC | PRESSUA | ES |
| Z | PT/PO | СРВ | U/UE | MB II | I/C UPPER S | CP | #L |
| 0.0 | 0.7127 | 0.1208 | 0.0 | 0-0 11 | 0.0 | 1. 1219 | 0.115 |
| 0.070 | 0.7287 | 0-1214 | 0.2612 | 0.17711 | 0.0040 | 0.4703 | 0.557 |
| 0.258 | 0.7348 | 0.1221 | 0.3056 | 0.20811 | 0.0080 | -0.2385 | 0.954 |
| 0.340 | 0.7360 | 0.1225 | 0.3128 | 0.21311 | 0.0150 | 0.1444 | 0.703 |
| 0.489 | 0.7388 | 0.1232 | 0.3299 | 0.22411 | 0.0250 | -0.4487 | 0.958 |
| 0.594 | 0.7408 | 0.1237 | 0.3410 | 0.23211 | 0.0400 | -0.5785 | 1.016 |
| 0.676 | 0.7428 | 0.1241 | 0.3522 | 0.24011 | 0.0600 | -0.7771 | 1.109 |
| 0.889 | 0.7491 | 0.1252 | 0.3861 | 0.26311 | 0.0800 | -0.9125 | 1.176 |
| 1.064 | 0.7552 | 0.1233 | 0.4199 | 0.28611 | | -0.9747 | 1.207 |
| 1.277 | 0.7632 | 0.1154 | 0.4668 | 0.31911 | 0.1400 | -1.0111 | 1.227 |
| 1.512 | 0.7700 | 0.1119 | 0.4995 | 0.34211 | 0.1800 | -1.0476 | 1.246 |
| 1.695 | 0.7763 | 0.1115 | 0.5241 | 0.35911 | 0.2200 | -1.0828 | 1.265 |
| 1.889 | 0.7835 | 0.1117 | 0.5499 | 0.37711 | 0.2600 | -1.0622 | 1.254 |
| 2.109 | 0.7928 | 0.1143 | 0.5790 | 0.39811 | 0.3000 | -1.0682 | 1.257 |
| 2.299 | 0.8010 | 0.1159 | 0.6037 | 0.41511 | 0.3400 | -1.0609 | 1.253 |
| 2.627 | 0 8139 | 0-1191 | 0.6393 | | 0.3800 | -1.0560 | 1.251 |
| 3.015 | 0.8326 | 0.1197 | 0.6899 | 0.47711 | 0.4200 | -1.0296 | 1.236 |
| 3.389 | 0.8520 | 0.1187 | 0.7388 | 0.51311 | 0.4600 | -0.5666 | 1.011 |
| 3.743 | 0.8731 | 0.1187 | 0.7864 | 0.54811 | 0.5000 | -0.4179 | 0.944 |
| 4. 168 | 0 8974 | 0.1170 | 0.8371 | 0.58511 | 0.5400 | -0.3960 | 0.935 |
| 4.493 | 0.9172 | 0.1156 | 0.3752 | 0.61411 | 0.5800 | -0.3986 | 0.936 |
| 4.892 | 0.9422 | 0.1137 | 0.9197 | 0.64811 | 0.6200 | -0.3833 | 0.929 |
| 5.258 | 0.9604 | 0.1127 | 0.9497 | 0.67111 | 0.6600 | -0.3560 | 0.917 |
| 5.635 | 0.9765 | 0.1127 | 0.9744 | 0.69011 | 0.7000 | -0.2998 | 0.893 |
| 6.012 | 0.9868 | 0.1145 | 0.9866 | 0.70111 | 0.7500 | -0.2054 | 0.852 |
| 6.359 | 0.9932 | 0.1167 | 0.1966 | 0.70711 | 0.8000 | -0.0880 | 0.802 |
| 6.762 | 0.9960 | 0.1185 | 0.9997 | 0.70911 | 0.8500 | 0.0258 | 0.753 |
| 7.489 | 0.9968 | 0.1223 | 0.9987 | 0.70911 | 0.9000 | 0.1208 | 0.713 |
| 9.370 | 0.9944 | 0.1193 | 0.9969 | 0.70711 | 0.9500 | 0.1933 | 0.681 |
| 11.321 | 0.9901 | 0.1164 | 0.9924 | 0.70411 | 0.9750 | 0.2202 | 0.670 |
| 4.168 | 0.9879 | 0.1110 | 0.9922 | 0.70311 | 1.0000 | 0.2403 | 0.661 |
| 5.829 | 0.9876 | 0.1077 | 0.9936 | 0.70511 | LOWER S | IDE | |
| 7.534 | 0.9869 | 0.1040 | 0.9947 | 0.70511 | 1.0000 | 0.2403 | 0.661 |
| 9.217 | 0.9865 | 0.1002 | 0.9962 | 0.70711 | 0.9500 | 0.4020 | 0.589 |
| 0.769 | 0.9868 | 0.0979 | 0.9979 | 0.70811 | 0.9000 | 0.4450 | 0.569 |
| 22.743 | 0.9863 | 0.0938 | 0.9995 | 0.70911 | 0.8500 | 0.4415 | 0.571 |
| 24.676 | 0.9872 | 0.0903 | 1.0027 | 0.71211 | 0.8000 | 0.4174 | 0.582 |
| 26.683 | 0.9881 | 0.0889 | 1.0049 | 0.71311 | 0.7500 | 0.3662 | 0.605 |
| 10.142 | 0.9898 | 0.0865 | 1.0086 | 0.71611 | 0.6500 | 0.2478 | 0.658 |
| 3.627 | 0.9912 | 0.0835 | 1.0122 | 0.71911 | 0.5500 | 0.1081 | 0.718 |
| 37.359 | 0.9929 | 0.0803 | 1.0164 | 0.72211 | 0.4500 | -0.0270 | 0.776 |
| | | | | 11 | 0.3500 | -0.1148 | 0.813 |
| | | | | 11 | 0.2500 | -0.0971 | 0.806 |
| | | | | 11 | 0.2000 | -0.0293 | 0.777 |
| | | | | 11 | 0.1500 | 0.0561 | 0.740 |
| | | | | 11 | 0.1000 | 0.1716 | 0.691 |
| | | | | 11 | 0.0500 | 0.2809 | 0.643 |
| | | | | 11 | 0.0200 | 0.3758 | 0.601 |
| | | | | 11 | 0.0080 | 0. 4720 | 0.557 |
| | | | | 11 | 0.0040 | 0.7139 | 0.436 |
| | | | | | | | |

Table 3.6 Continued

| BUN | 195 MA | =0766 | ALPA= | 2.50 PI | NF=375.3 | PO=553. | 3 TO= 30 2. 5 |
|------|---------|--------|---------|----------|-----------|---------|---------------|
| | | =0.24E | | | | | |
| X/C= | C. 9900 | Z E= 1 | 1. 165 | ME=0.666 | UE=222.6 | 1 CPE= | 0.2150 |
| DEL= | 9.363 | DEL .= | 3.8507 | THETA= | 1.4626 H | =2.633 | CF=0.00048 |
| (D | ISTANCE | S (MM) | 0 (8/5) | P (MAHG) | T (DEG. K | ALPA | (DEG.)) |
| | | | | | | | |

| (DIS | TANCES (MM |) U(M/S) | | G) T(DE | G.K) AL | PA (DEG.)) | |
|----------|------------|-----------|--------|----------|----------------|--------------------|--------|
| | BCUNDARY | LAYER PRO | FILES | !! | SURPAC | E PRESSUR | ES |
| Z | PT/PO | СРВ | U/UE | MB 11 | X/C UPPER S | CP | HL |
| 0.0 | 0.7467 | 0.2459 | 0.0 | 0.0 11 | 0.0 | 1, 1098 | 0.135 |
| 0.070 | 0.7478 | 0.2444 | 0.0830 | 0.05311 | 0.0040 | 0.4633 | 0.562 |
| 1 0.107 | 0.7484 | 0.2436 | 0.1035 | 0.06611 | 0.0080 | -0.2107 | 0.856 |
| 1 0.160 | 0.7488 | 0.2425 | 0.1191 | 0.07611 | 0.0150 | 0.1405 | 0.706 |
| 1 0.238 | 0.7491 | 0.2409 | 0.1337 | 0.08511 | 0.0250 | -0.4463 | 0.959 |
| 1 0. 305 | 0.7495 | 0.2395 | 0.1459 | 0.09311 | 0.0400 | -0.5790 | 1.018 |
| 1 0.421 | 0.7504 | 0.2370 | 0.1701 | 0.10911 | 0.0600 | -0.7758 | 1.111 |
| 1 0.544 | 0.7514 | 0.2344 | 0.1918 | 0. 12311 | 0.0800 | -0.9085 | 1.176 |
| 1 0.648 | 0.7525 | 0.2322 | 0.2118 | 0.13511 | 0.1000 | -0.9669 | 1.206 |
| 1 0.820 | 0.7536 | 0.2286 | 0.2338 | 0. 15011 | 0.1400 | -1.0029 | 1.225 |
| 1 1.033 | 0.7555 | 0.2254 | 0.2602 | 0.16711 | 0.1800 | -1.0389 | 1.244 |
| 1 1.234 | 0.7572 | 0.2259 | 0.2735 | 0.17511 | 0.2200 | -1.0748 | 1. 264 |
| 1 1.592 | 0.7608 | 0.2301 | 0.2931 | 0.18811 | 0.2600 | -1.0520 | 1.252 |
| 1 1.966 | 0.7648 | 0.2330 | 0.3166 | 0.20311 | 0.3000 | -1.0603 | 1.256 |
| 2.701 | 0.7783 | 0.2342 | 0.3537 | 0.22711 | 0.3400 | -1.0555 -1.0499 | 1.253 |
| 3.070 | 0.7857 | 0.2358 | 0.4358 | 0.28011 | 0.3800 | -1.0339 | 1.242 |
| 1 3.447 | 0.7941 | 0.2361 | 0.4758 | 0.30711 | 0.4600 | -0.6363 | 1.045 |
| 1 3.835 | 0.8044 | 0.2358 | 0.5205 | 0.33611 | 0.5000 | -0.4272 | 0.950 |
| 1 4.227 | 0.8167 | 0.2359 | 0.5682 | 0.36811 | 0.5400 | -0.4034 | 0.940 |
| 4.585 | 0.8268 | 0.2366 | 0.6032 | 0. 39111 | 0.5800 | -0.4047 | 0.940 |
| 1 4.936 | 0.8386 | 0.2364 | 0.6418 | 0-41711 | 0.6200 | -0.3917 | 0.935 |
| 1 5.305 | 0.8536 | 0.2363 | 0.6871 | 0.44711 | 0.6600 | -0.3583 | 0.920 |
| 1 5.693 | 0.8688 | 0.2361 | 0.7292 | 0.47611 | 0.7000 | -0.3016 | 0.895 |
| 1 6.443 | 0.9019 | 0.2327 | 0.8127 | 0.53311 | 0.7500 | -0.2050 | 0.854 |
| 1 7.171 | 0.9334 | 0.2311 | 0.8807 | 0.58111 | 0.8000 | -0.0788 | 0.800 |
| 1 7.943 | 0.9655 | 0.2303 | 0.9420 | 0.62411 | 0.8500 | 0.0348 | 0.751 |
| 1 8.742 | 0.9879 | 0.2295 | 0.9811 | 0.65211 | 0.9000 | 0.1318 | 0.709 |
| 1 9.363 | 0.9918 | 0.2251 | 0.9903 | 0.65911 | 0.9500 | 0.2063 | 0.677 |
| 1 9.432 | 0.9936 | 0.2257 | 0.9928 | 0.66111 | 0.9750 | 0.2337 | 0.665 |
| 110.204 | 0.9955 | 0.2181 | 1.0006 | 0.66711 | 1.0000 | 0.2541 | 0.656 |
| 111.271 | 0.9939 | 0.2145 | 1.0002 | 0.66611 | LOWER S | | |
| 113.216 | 0.9891 | 0.2078 | 0.9965 | 0.66411 | 1.0000 | 0.2541 | 0.656 |
| 116.898 | 0.9852 | 0.2022 | 0.9950 | 0.66311 | 0.9500 | 0.4180 | 0.583 |
| 118.887 | 0.9849 | 0.1932 | 0.9985 | 0.66311 | 0.8500 | 0.4590 | 0.564 |
| 120.898 | 0.9849 | 0.1879 | 1.0017 | 0.66711 | 0.8000 | 0.4545 | 0.566 |
| 122.566 | 0.9848 | 0.1829 | 1.0045 | 0.66911 | 0.7500 | 0.3755 | 0.602 |
| 124.447 | 0.9852 | 0.1784 | 1.0080 | 0.67211 | 0.6500 | 0.2544 | 0.656 |
| 126.630 | 0.9854 | 0.1736 | 1.0113 | 0.67411 | 0.5500 | 0.1165 | 0.716 |
| 128.357 | 0.9857 | 0.1692 | 1.0145 | 0.67711 | 0.4500 | -0.0217 | 0.775 |
| 129.958 | 0.9862 | 0.1658 | 1.0173 | 0.67911 | 0.3500 | -0.1078 | 0.812 |
| 132.141 | 0.9869 | 0.1622 | 1.0206 | 0.68111 | 0.2500 | -0.0886 | 0.804 |
| 134.014 | 0.3872 | 0.1583 | 1.0235 | 0.68311 | 0.2000 | -0-0201 | 0.774 |
| 137.421 | 0.9884 | 0.1520 | 1.0231 | 0.68711 | 0.1500 | 0.0669 | 0.737 |
| 137.969 | 0.9888 | 0.1511 | 1.0302 | 0.68811 | 0-1000 | 0.1821 | 0.687 |
| 1 | | | | 11 | 0.0500 | 0.2897 | 0.640 |
| 1 | | | | 11 | 0.0200 | 0.3805 | 0.600 |
| 1 | | | | 11 | 0.0080 | 0.4707 | 0.558 |
| 1 | | | | 11 | 0.0040 | 0.7320 | 0.427 |
| 1 | | | | 11 | 0.0 | 1. 1098 | 0.135 |
| | | | | | | | |

DEL- 4.126 DEL- 1.5513 THETA- 0.6404 H-2.422 CP-0.00099

(DISTANCES(HB) U(R/S) P(RHBG) T(DEG.K) ALFA(DEG.))

BOUNDARY LATER PROFILES | I SUFFACE PRESSURES

| 8 | MUNDARY | LATER PR | OFILES | !! | SURPAC | B PRESSUR | BS |
|---------|---------|----------|---------|----------|----------------|-----------|--------|
| Z | PT/PO | СРВ | 0/02 | MB 41 | I/C UPPER S | CP | BL |
| 0.0 | 0-6050 | -0.2105 | 0.0 | 0.0 | 0.0 | 1. 1416 | 0.096 |
| 0.070 | | -0.2098 | 0.2893 | 0.23411 | 0.0040 | 0.5209 | 0.548 |
| 0. 122 | | -0.2096 | 0.3396 | 0-27611 | 0.0080 | -0.1416 | 0.848 |
| 0.156 | | -0.2093 | 0.3513 | 0. 28511 | 0.0150 | 0.2058 | 0.694 |
| 0.204 | | -0.2090 | 0.3612 | 0.29411 | 0.0250 | -0.3766 | 0.954 |
| 0.290 | | -0.2083 | 0. 3660 | 0. 29811 | | -0.5103 | 1.015 |
| 0.365 | | -0.2078 | 0.3779 | 0.30711 | | -0.6669 | 1-091 |
| 0.454 | | -0.2071 | 0. 1988 | 0.32511 | | -0.8760 | 1. 198 |
| 0.521 | | -0.2066 | 0.3972 | 0.32311 | | -0.9224 | 1.223 |
| 0.629 | | -0.2058 | 0-4200 | 0.34211 | | -0.9634 | 1.245 |
| 0.678 | | -0-2055 | 0.4268 | 0.34811 | | -1.0043 | 1.268 |
| 0.749 | | -0.2050 | 0.4480 | 0.36611 | | -1.0063 | 1.269 |
| 0.850 | | -0-2042 | 0.4513 | 0.36911 | | -1.0116 | 1.272 |
| 0.958 | | -0.2034 | 0.4655 | 0. 38111 | | -1.0218 | 1.278 |
| 1.129 | | -0.2066 | 0.4937 | 0.40411 | | -1.0201 | 1.277 |
| 1. 301 | | -0.2099 | 0.5209 | 0.42711 | | -1-0244 | 1.280 |
| 1.484 | | -0-2093 | 0.5687 | 0.46811 | | -1.0144 | 1.274 |
| 1.671 | | -0.2080 | 0.5932 | 0.48911 | | -1.0280 | 1.282 |
| 1.865 | | -0.2130 | 0.6434 | 0.53311 | | -1.0274 | 1.281 |
| 2. 268 | | -0.2127 | 0.7062 | 0.58911 | 0.5400 | -0.5568 | 1.037 |
| 2.622 | | -0.2099 | 0.7942 | 0.66811 | | -0.4035 | 0.966 |
| 2.984 | | -0.2073 | 0-8594 | 0.72811 | | -0.3257 | 0.930 |
| 3.379 | | -0.2035 | 0.9169 | 0. 78311 | | -0.2678 | 0.904 |
| 3.749 | | -0.1984 | 0.9695 | 0.83411 | | -0.2105 | 0.879 |
| 4.126 | | -0.1935 | 0.9935 | 0.85841 | | -0.1321 | 0.844 |
| 4.506 | | -0.1886 | 0.9993 | 0.86311 | | -0.0517 | 0.808 |
| 5.629 | | -0.1782 | 0.9967 | 0.86111 | | 0.0333 | 0.771 |
| 7.484 | | -0-1733 | 0.9938 | 0.85811 | | 0.1084 | 0.738 |
| 9.570 | | -0.1692 | 0.9893 | 0.85311 | | 0.1740 | 0.708 |
| 11. 335 | | -0.1663 | 0.9805 | 0.84511 | | 0.2002 | 0.697 |
| 13.096 | | -0.1632 | 0.9744 | 0.83911 | | 0.2311 | 0.683 |
| 15.025 | | -0.1612 | 0.9710 | 0.83511 | | | 0.003 |
| 16.786 | | -0.1601 | 0.9689 | 0.83311 | | 0.2311 | 0.683 |
| 18.958 | | -0.1590 | 0.9668 | 0.83111 | | 0.4190 | 0.597 |
| 21.092 | | -0.1590 | 0.9658 | 0.83011 | | 0.4638 | 0.576 |
| 22.648 | | -0-1579 | 0.9649 | 0.82911 | | 0.4599 | 0.578 |
| 24.741 | | -0.1534 | 0.9652 | 0.83011 | | 0.4323 | 0.591 |
| 26. 335 | | -0.1489 | 0.9647 | 0.82911 | | 0.3772 | 0.616 |
| 30.096 | | -0.1389 | 0.9633 | 0.82811 | | 0.2541 | 0.673 |
| 33.622 | | -0.1309 | 0.9620 | 0.82711 | | 0.1173 | 0.734 |
| 37. 316 | | -0.1234 | 0.9602 | 0.82511 | | -0-0259 | 0.797 |
| 41.118 | | -0.1172 | 0.9595 | 0.82411 | | -0.1119 | 0.835 |
| | 0. 7007 | | 0. 9393 | 0.02411 | | -0.0919 | 0.826 |
| | | | | ii | | -0-0234 | 0.796 |
| | | | | ii | | 0.0642 | 0.757 |
| | | | | - 11 | | 0.1780 | 0.707 |
| | | | | ii | | 0. 1780 | 0.655 |
| | | | | - 11 | | 0. 3850 | 0.613 |
| | | | | | 0.0200 | | |
| | | | | !! | | 0.4722 | 0.572 |
| | | | | . !! | | 0.7220 | 0.445 |
| | | | | 11 | 0.0 | 1.1416 | 0.096 |

| BOUNDARY LAYER PROPILES II SURPACE PRESSURES | | | | | | | | | | |
|--|---------|--------------------|---------|----------|----------------|--------------------|-------|--|--|--|
| Z | PT/PC | СРВ | U/UE | MB 11 | X/C UPPER S | CP | ML | | | |
| 0.0 | 0.6581 | -0.0284 | 0.0 | 0.0 11 | 0.0 | 1.1213 | 0.132 | | | |
| 0.070 | 0.6707 | -0.0297 | 0.2240 | 0. 16811 | 0.0040 | 0.5019 | 0.557 | | | |
| 0. 104 | 0.6772 | -0.0295 | 0.2725 | 0.20411 | 0.0080 | -0.1569 | 0.854 | | | |
| 0.179 | 0.6804 | -0.0303 | 0.2953 | 0.22111 | 0.0150 | 0.1887 | 0.701 | | | |
| 0.242 | 0.6822 | -0.0309 | 0.3077 | 0.23111 | 0.0250 | -0.3913 | 0.959 | | | |
| 0.309 | 0.6848 | -0.0316 | 0.3244 | 0.24411 | 0.0400 | -0.5237 | 1.020 | | | |
| 0.391 | 0.6878 | -0.0325 | 0.3422 | 0.25711 | 0.0600 | -0.6788 | 1.095 | | | |
| 0.481 | 0.6911 | -0.0334 | 0.3698 | 0.27111 | 0.0800 | -0.8870 | 1.201 | | | |
| 0.548 | 0.6909 | -00341 | 0.3610 | 0.27111 | 0.1000 | -0.9307 | 1.225 | | | |
| 0.611 | 0.6938 | -0.0347 | 0.3760 | 0.28311 | 0.1400 | -0.9708 | 1.247 | | | |
| 0.738 | 0.6987 | -0.0360 | 0.4010 | 0.30211 | 0.1800 | -1.0109 | 1.269 | | | |
| 0.835 | 0.7016 | -0.0370 | 0.4151 | 0.31311 | 0.2200 | -1.0127 | 1.270 | | | |
| 1.011 | 0.7079 | -0.0409 | 0.4460 | 0.33711 | 0.2600 | -1.0167 | 1.273 | | | |
| 1.238 | 0.7191 | -0.0389 | 0.4859 | 0.36811 | 0.3000 | -1.0288 | 1.279 | | | |
| 1.406 | 0.7267 | -0.0362 | 0.5093 | 0.33611 | 0.3400 | -1.0274 | 1.279 | | | |
| 1.750 | 0.7395 | -0.0300 | 0.5441 | 0.41311 | | -1.0299 | 1.280 | | | |
| 2.111 | 0.7608 | -0.0249 | 0.6006 | 0.45811 | 0.4200 | -1.0152 -1.0278 | 1.272 | | | |
| 2.492 | 0.7826 | -0.0225 | 0.6537 | 0.50011 | 0.5000 | -1.0111 | 1.269 | | | |
| 2.880 | 0.8055 | -0.0200 | 0.7035 | 0.54011 | 0.5400 | -0.5528 | 1.034 | | | |
| 3.227 | 0.8313 | -0.0165 | 0.7532 | 0.58111 | 0.5800 | -0.4103 | 0.967 | | | |
| 3.619 | 0.8641 | -0.0150 | 0.8113 | 0.62911 | 0.6200 | -0.3399 | 0.935 | | | |
| 4.104 | 0.9043 | -0.0192 | 0.8774 | 0.68511 | 0.6600 | -0.2807 | 0.909 | | | |
| 4.365 | 0.9331 | -0.0221 | 0.9197 | 0.72111 | 0.7000 | -0.2202 | 0.882 | | | |
| 4.742 | 0.9560 | -0-0259 | 0.9518 | 0.74911 | 0.7500 | -0.1356 | 0.844 | | | |
| 5.108 | 0.9740 | -0.3271 | 0.9747 | 0.76911 | 0.8000 | -0.0284 | 0.797 | | | |
| 5.496 | 0.9844 | -0.0268 | 0.9869 | 0.78011 | 0.8500 | 0.0580 | 0.759 | | | |
| 5.876 | 0.9910 | -0.0256 | 0.9940 | 0.78611 | 0.9000 | 0.1314 | 0.726 | | | |
| 6.220 | 0.9934 | -0.0253 | 0.1966 | 0.78911 | 0.9500 | 0.1872 | 0.702 | | | |
| 7.335 | 0.9953 | -0.0196 | 0.9950 | 0.78811 | 0.9750 | 0.2152 | 0.689 | | | |
| 9.223 | 0.9941 | -0.0135 | 0.9916 | 0.78411 | 1.0000 | 0.2391 | 0.678 | | | |
| 11.085 | 0.9896 | -0.0121 | 0.9857 | 0.77911 | LOWER S | | | | | |
| 14.828 | 0.9816 | -0.0090 | 0.9746 | 0.76911 | 1.0000 | 0.2391 | 0.678 | | | |
| 18.973 | 0.9814 | -0.0066 | 0.9731 | 0.76811 | 0.9500 | 0.4209 | 0.595 | | | |
| 22.414 | 0.9827 | -0.0062 | 0.9744 | 0.76911 | 0.9000 | 0.4765 | 0.569 | | | |
| 26.011 | 0.9836 | -0.0054 | 0.9751 | 0.77011 | 0.8500 | 0.4751 | 0.570 | | | |
| 29.772 | 0.9844 | -0.0057 | 0.9762 | 0.77111 | 0.8000 | 0.4456 | 0.584 | | | |
| 33.507 | 0.9847 | -0.0073 | 0.9775 | 0.77211 | 0.7500 | 0.3904 | 0.609 | | | |
| 37.507 | 0.9851 | -0.0091 | 0.9788 | 0.77311 | 0.6500 | 0.2646 | 0.667 | | | |
| 41.108 | 0.9854 | -0.0118 -0.0135 | 0.9809 | 0.77411 | 0.5500 | 0.1234 | 0.730 | | | |
| 44.911 | 0. 9651 | -0.0135 | 0. 9009 | 0.77511 | 0.3500 | -0.1167 | 0.836 | | | |
| | | | | - 11 | 0.2500 | -0.0972 | 0.827 | | | |
| | | | | ii | 0.2000 | -0.0281 | 0.797 | | | |
| | | | | ii | 0.1500 | 0.0573 | 0.759 | | | |
| | | | | ii | 0 1000 | 0.1700 | 0.709 | | | |
| | | | | ii | 0.0500 | 0.2846 | 0.658 | | | |
| | | | | 11 | 0-0200 | 0.3715 | 0.618 | | | |
| | | | | ii | 0.0080 | 0.4558 | 0.579 | | | |
| | | | | ii | 0.0040 | 0.7348 | 0.437 | | | |
| | | | | 11 | 0.0 | 1. 1213 | 0.132 | | | |
| | | | | | | | | | | |

| (DIST | ANCES (MM) | U (M/S) | P (MMHG |) T (DE | G. K) ALP | A (DEG.)) | |
|--------|------------|---------|---------|----------|-----------------|-----------|---------|
| В | OUNDARY L | YEB PRO | PILES | !! | SURFACE | PRESSUR | ES |
| Z | PT/PO | CPB | U/UE | MB !! | I/C UPPER SI | CP | ML |
| 0.0 | 0.5822 - | 2906 | 0.0 | 0.0 11 | 0.0 | 1. 1314 | 0.11 |
| 0.070 | 0.6054 - | | | 0.23611 | 0.0040 | 0.5094 | 0.554 |
| 0.174 | | 2893 | | 0.27111 | 0.0080 | -0.1479 | 0.850 |
| 0.249 | 0.6154 - | | | 0.28011 | 0.0150 | 0. 1927 | 0.700 |
| | | | | 0.31011 | 0.0250 | -0. 3865 | 0.95 |
| 0.413 | | 0.2875 | | 0.33111 | 0.0400 | -0.5183 | 1.019 |
| | | | | 0.36611 | 0.0600 | -0.6719 | 1.09 |
| 0.790 | | 0.2847 | | 0. 39311 | 0.0800 | -0.8792 | 1. 199 |
| 0.976 | | | | | 0.1000 | -0.9244 | 1.22 |
| 1.148 | | 2840 | | 0.44111 | 0.1400 | -0.9647 | 1.24 |
| 1.331 | | 2826 | | 0.47011 | | | |
| 1.551 | | 2833 | | 0.51911 | 0.1800 | -1.0050 | 1.26 |
| 1.719 | | 0.2813 | | 0.54511 | 0.2200 | -1.0072 | 1.269 |
| 1.917 | | 2797 | | 0.58211 | 0.2600 | -1.0116 | 1.27 |
| 2.077 | | 2781 | | 0.61511 | 0.3000 | -1.0239 | 1.27 |
| 2.271 | | 2782 | | 0.67311 | 0.3400 | -1.0206 | 1.27 |
| 2.465 | | 0. 2755 | | 0.71811 | 0.3800 | -1.0283 | 1.28 |
| 2.655 | | 0.2759 | | 0.75411 | 0.4200 | -1.0151 | 1.27 |
| 3.014 | | 2754 | | 0.82211 | 0.4600 | -1.0287 | 1. 28 |
| 3.402 | 0.9699 - | | | 0.87711 | 0.5000 | -1.0198 | 1.27 |
| 3.484 | 0.9783 - | 2695 | | 0.88411 | 0.5400 | -0.5644 | 1.04 |
| 3.566 | 0.9830 - | 2682 | | 0.88811 | 0.5800 | -0.4056 | 0.96 |
| 3.775 | 0.9910 - | . 2653 | | 0.89411 | 0.6200 | -0.3314 | 0.93 |
| 4.532 | 0.9946 - | 2564 | | 0.89411 | 0.6600 | -0.2770 | 0.90 |
| 5.286 | 0.9932 - | 2506 | 0.9957 | 0.89011 | 0.7000 | -0.2226 | 0.88 |
| 6.006 | 0.9920 - | 0.2476 | 0.9934 | 0.88711 | 0.7500 | -0-1463 | 0.85 |
| 6.756 | 0-9910 - | 1.2462 | 0.9919 | 0.88611 | 0.8000 | -0.0552 | 0.81 |
| 7.215 | 0.9900 - | 2468 | 0.9912 | 0.88511 | 0.8500 | 0.0316 | 0.77 |
| 7.514 | 0.9904 - | 2477 | 0.9919 | 0.88611 | 0.9000 | 0.1094 | 0.73 |
| 9.633 | 0.9886 - | 0-2421 | 0.9879 | 0.88211 | 0.9500 | 0.1746 | 0.70 |
| 11.241 | 0.9823 - | 2364 | 0.9795 | 0.87311 | 0.9750 | 0.2028 | 0.69 |
| 13.234 | | 0.2292 | 0.9727 | 0.86611 | 1.0000 | 0.2301 | 0.68 |
| 15.066 | | 0.2235 | 0.9698 | 0.86311 | LOWER SI | DE | |
| 17.364 | | 2.2167 | | 0.86111 | 1.0000 | 0.2301 | 0.68 |
| 18.782 | | 2120 | | 0.85911 | 9.9500 | 0.4129 | 0.60 |
| 20.685 | | 2064 | | 0.85611 | 0-9000 | 0.4671 | 0.57 |
| 22.614 | | 2026 | | 0. 85511 | 0.8500 | 0.4661 | 0.57 |
| 24.584 | | 1984 | | 0.85311 | 0.8000 | 0.4390 | 0.58 |
| 26.327 | | 1.1934 | | 0.85211 | 0.7500 | 0.3837 | 0.61 |
| 28.215 | | 1867 | | 0.85111 | 0.6500 | 0.2604 | 0.66 |
| 30.058 | | 1806 | | 0.85011 | 0.5500 | 0. 1229 | 0.73 |
| 33.905 | 0.9863 - | | | 0.84811 | 0.4500 | -0.0258 | 0.79 |
| 37.424 | | 1652 | | 0.84611 | 0.3500 | -0.1140 | 0.83 |
| 41.472 | 0.9878 - | | | 0.84311 | 0.2500 | -0.0908 | 0.82 |
| | | | | 11 | 0.2000 | -0.0229 | 0.79 |
| | | | | ii | 0.1500 | 0.0635 | 0.75 |
| | | | | ii | 0. 1000 | 0.1785 | 0.70 |
| | | | | ii | 0.0500 | 0.2937 | 0.65 |
| | | | | ii | 0.0200 | 0. 3821 | 0.61 |
| | | | | ii | 0.0080 | 0.4666 | 0.57 |
| | | | | | 0.0040 | 0.7185 | 0.44 |
| | | | | 11 | 0.0 | 1. 1314 | 0.11 |
| | | | | - 11 | U . U | 1. 1314 | U . I I |

| BUN 170 | HA-0.795 | ALFA= 2.52 | PINF=362.9 | PO=585.1 | TO=303.4; | BE-0.29E 07 | I/C= 0.6200 | ZE= 4.204 | HE=0.916 | UE=296.06 | CPE=-0.3006 | | DEL= 3.403 | DEL= 1.3736 | THETA= 0.5089 | H=2.699 | CF=0.00077 | (DISTANCES(HB) | U(H/S) | P(HRHG) | T(DEG.K) | ALFA(DEG.) |

| ! | | | | | | | |
|---------|---------|----------|---------|----------|---------|--------------------|---------|
| 1 | DUNDARY | LAYER PE | OFILES | 11 | SUBPACE | PRESSUR | ES |
| Z | PT/PO | CPB | 0/02 | 88 II | X/C | CP | ML . |
| 0.0 | 0.5713 | -0.3288 | 0.0 | 0.0 | O.O | 1.1382 | 0.102 |
| 0.070 | | -0.3284 | 0.2516 | 0.21411 | 0.0040 | 0.5152 | 0.551 |
| 0.130 | | -0.3282 | 0.2885 | 0-24611 | 0.0080 | -0.1434 | 0.848 |
| 1 0.234 | 0.6000 | -0.3277 | 0.3092 | 0. 26411 | 0.0150 | 0.2017 | 0.696 |
| 0.302 | 0.6010 | -0.3274 | 0.3138 | 0. 26811 | 0.0250 | -0.3794 | 0.954 1 |
| 1 0.376 | | -0.3270 | 0.3271 | 0.27911 | | -0.5119 | 1.016 |
| 1 0.563 | | -0.3261 | 0.3475 | 0.29711 | | -0.6689 | 1.091 4 |
| 0.742 | | -0.3252 | 0.3830 | 0.32811 | | -0.8766 | 1.197 |
| 1 0.947 | | -0.3242 | 0-4229 | 0.36311 | | -0.9239 | 1.222 |
| 1 1.108 | | -0.3222 | 0.4682 | 0-40311 | | -0.9649 | 1.245 |
| 1 1.305 | | -0.3246 | 0.5316 | 0-46011 | 0.1800 | -1.0059 | 1.268 |
| 1 1.492 | | -0.3270 | 0.5937 | 0.51711 | | -1.0089 | 1.270 1 |
| 1 1.705 | | -0.3286 | 0.6567 | 0.57511 | | -1.0142 | 1.273 |
| 1 1.958 | | -0.3284 | 0.7141 | 0.62911 | 0.3000 | -1.0243 | 1.279 |
| 1 2.063 | | -0.3267 | 0.7690 | 0.68211 | | -1.0224 | 1.277 |
| 1 2.268 | | -0.3227 | 0.8091 | 0.72111 | | -1.0274 | 1.280 |
| 1 2.429 | | -0.3189 | | 0.76011 | 0.4200 | -1.0156 | 1.274 |
| 2.820 | | -0.3195 | 0.9346 | 0.79911 | 0.4600 | -1.0289 -1.0273 | 1.281 |
| 2.981 | | -0.3173 | 0.9587 | 0.87211 | | -0.5439 | |
| 3. 152 | | -0.3188 | 0.9397 | 0.89311 | 0.5800 | -0.4041 | 0.966 |
| 1 3.339 | | -0.3154 | 0.9903 | 0.90611 | | -0.3288 | 0.931 |
| 3.403 | | -0.3135 | 0. 9906 | 0.90611 | 0.6600 | -0.2730 | 0.906 |
| 3.552 | | -0.3129 | 0.9980 | 0.91411 | | -0.2222 | 0.883 |
| 3.746 | | -0. 3081 | 0. 1988 | 0.91511 | 0.7500 | -0.1506 | 0.852 |
| 4.115 | | -0.3011 | 0.9977 | 0.91411 | 0.8000 | -0.0660 | 0.814 |
| 1 4.477 | | -0-2975 | 0.9962 | 0.91211 | 0.8500 | 0.0209 | 0.776 |
| 1 5.623 | | -0.2861 | 0.9914 | 0-90711 | 0.9000 | 0.1017 | 0.740 |
| 7.634 | | -0.2762 | 0.9873 | 0.90311 | | 0.1748 | 0.708 |
| 1 9.335 | 0.9932 | -0.2676 | 0. 3823 | 0.89711 | | 0.2043 | 0.695 |
| 111.249 | 0.9845 | -0.2610 | 0.9717 | 0.88611 | 1.0000 | 0.2320 | 0.682 |
| 113.141 | 0.9807 | -0.2556 | 0.9660 | 0.88011 | | | |
| 115.014 | 0.9791 | -0.2499 | 0.9621 | 0.87611 | 1.0000 | 0.2320 | 0.682 |
| 116.887 | | -0.2450 | 0.9592 | 0.87311 | 0.9500 | 0.4168 | 0.598 |
| 118.746 | | -0.2406 | 0.9562 | 0.87011 | 0.9000 | 0.4645 | 0.575 |
| 120.570 | | -0.2361 | 0.9543 | 0.86811 | 0.8500 | 0.4606 | 0.577 |
| 122.466 | | -0.2308 | 0.9520 | 0.86511 | 0.8000 | 0.4336 | 0.590 |
| 124.309 | | -0.2251 | 0.9499 | 0.86311 | | 0.3797 | 0.615 |
| 126.268 | | -0.2198 | 0.9481 | 0.86111 | 0.6500 | 0.2560 | 0.671 |
| 129.872 | | -0.2098 | 0.9451 | 0.85811 | | 0.1217 | 0.731 |
| 133.608 | | -0.1996 | 0-9418 | 0.85511 | 0.4500 | -0.0258 | 0.796 |
| 137.328 | | -0.1910 | 0.9393 | 0.85211 | 0.3500 | -0.1136 | 0.835 |
| 141.078 | 0.9842 | -0.1831 | 0.9379 | 0.85111 | 0.2500 | -0.0945 | 0.827 |
| | | | | 11 | 0.2000 | -0.0245 | 0.796 |
| | | | | 11 | 0.1500 | 0.0614 | 0.758 |
| : | | | | 11 | | 0.1749 | 0.708 |
| | | | | 11 | 0.0500 | 0.2919 | 0.655 |
| ! | | | | !! | 0.0200 | 0.3826 | 0.614 |
| ! | | | | 11 | 0.0080 | 0.4708 | 0.572 |
| : | | | | 11 | 0.0040 | 0.7135 | 0.449 |
| | | | | !! | | 1.1382 | 0.102 |

| 1 0.070 0.5631 -0.4100 0.2237 0.196 0.0040 0.5071 0.554 1 0.212 0.5677 -0.4094 0.2539 0.223 0.0080 -0.1526 0.852 1 0.279 0.5700 -0.4089 0.2674 0.235 0.0150 0.1921 0.700 1 0.410 0.5759 -0.4079 0.2993 0.263 0.0150 0.1921 0.700 1 0.514 0.5840 -0.4072 0.3386 0.298 0.0400 -0.5187 1.018 1 0.634 0.5902 -0.4063 0.1652 0.322 0.0600 -0.6754 1.018 1 0.634 0.5902 -0.4063 0.1652 0.322 0.0600 -0.6754 1.098 1 0.734 0.6002 -0.4055 0.4041 0.357 0.0800 -0.8825 1.200 1 0.884 0.6085 -0.4044 0.4329 0.383 0.1000 -0.9275 1.224 1 0.773 0.6155 -0.4089 0.4699 0.4091 0.1400 -0.9675 1.246 1 0.773 0.6277 -0.1996 0.4699 0.493 0.1800 -1.0076 1.268 | 1 | Ancesin | | | | | | |
|--|---------|---------|----------|--------|--------|----------|---------|-------|
| 1 | i | | | | | | | |
| 10.00 | | PT/PO | CPB | U/UZ | | | | HL |
| 0.212 | | 0.5480 | -0.4110 | 0.0 | | 0.0 | 1. 1279 | |
| 0.470 | | | | | | | | |
| 0.410 | | | | | | | | |
| 0.614 | | | | | | | | |
| 0.634 | | | | | | | | |
| 0.894 | | | | | | | | |
| 0.884 | | | | | | | | |
| 1.0.473 | | | | | | | | |
| 1.081 | | | | | | | | |
| 1.216 | | | | | | | | |
| 1.413 | | | | | | | | |
| 1.794 | | | | | | | -1.0134 | 1.272 |
| 1 1.794 0.7386 -0.3873 0.7181 0.5531 0.3400 -1.0200 1.278 1.988 0.7755 -0.3917 0.7767 0.7111 0.3800 -1.0300 1.281 2.156 0.8149 -0.3903 0.8282 0.7641 0.4200 -1.0300 1.281 2.152 0.8506 -0.3945 0.8725 0.8101 0.4600 -1.0287 1.280 2.522 0.8966 -0.3926 0.9199 0.8601 0.5000 -1.0287 1.281 2.701 0.9311 -0.3874 0.9522 0.8951 0.5400 -0.5575 1.037 2.702 0.9919 -0.3875 0.9777 0.9231 0.5800 -0.4110 0.968 3.111 0.9804 -0.3899 0.9941 0.9411 0.6200 -0.3331 0.913 3.3109 0.9981 -0.3899 0.9941 0.9411 0.6200 -0.2388 0.890 13.514 0.9911 -0.3798 0.9986 0.9461 0.6600 -0.2811 0.913 13.516 0.9951 -0.3798 0.9986 0.9461 0.7500 -0.1660 0.8578 14.406 0.9937 -0.3727 0.9974 0.9451 0.7500 -0.1660 0.8578 15.518 0.9951 -0.3432 0.9868 0.9941 0.9000 -0.0700 0.0817 15.518 0.9951 -0.3432 0.9767 0.9221 0.9900 0.1015 0.739 11.205 0.9952 -0.3183 0.9767 0.9221 0.9900 0.1015 0.739 11.205 0.9952 -0.388 0.9985 0.9441 0.9500 0.1015 0.739 11.205 0.9952 -0.3899 0.9941 0.9950 0.1015 0.739 11.215 0.9858 0.9944 -0.3026 0.9955 0.9141 0.9500 0.1015 0.739 11.215 0.9858 -0.2734 0.9988 0.9821 1.0000 0.2352 0.680 11.205 0.9977 0.2586 0.9981 0.9921 0.9750 0.2055 0.694 13.115 0.9854 -0.2734 0.9988 0.8921 1.0000 0.2352 0.680 13.712 0.9888 -0.2734 0.9988 0.8921 1.0000 0.2352 0.680 13.712 0.9838 -0.2164 0.9330 0.8741 0.8500 0.4662 0.574 13.115 0.9852 -0.1873 0.9199 0.8501 0.5500 0.4662 0.574 13.116 0.9822 -0.1873 0.9199 0.8501 0.5500 0.4662 0.574 13.116 0.9822 -0.1873 0.9199 0.8501 0.5500 0.4662 0.574 13.116 0.9822 -0.1873 0.9199 0.8501 0.5500 0.2610 0.601 13.116 0.9822 -0.1873 0.9199 0.8501 0.5500 0.2610 0.601 14.0000 0.9821 -0.1827 0.9089 0.8481 0.5500 0.2610 0.600 | 1 1.611 | 0.7034 | -0.3924 | 0.6597 | 0.5961 | 0.3000 | -1.0246 | 1.278 |
| 2.156 | | 0.7386 | -0.3873 | 0.7181 | 0.6531 | 1 0.3400 | | |
| 2.228 | | | | | | | | |
| 2.522 | | | | | | | | |
| 1, 2, 701 | | | | | | | | |
| 2,902 | | | | | | | | |
| 3.111 | | | | | | | | 1.037 |
| 3.319 0.9881 -0.1858 0.9986 0.946 0.6600 -0.2881 0.890 0.360 0.7000 -0.2881 0.890 0.891 0.7910 0.7986 0.9986 0.796 0.7000 -0.2888 0.890 0.850 0.7500 -0.2888 0.890 0.850 0.8500 0.9937 0.7727 0.9977 0.945 0.8000 -0.0740 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.857 0.8500 0.8500 0.857 0.8500 | | | | | | | | |
| 1,5-14 0,991 - 0,1746 0,9974 0,946 0,7000 - 0,2188 0.890 0.890 0.891 0.690 0.1660 0.858 0.4901 0.7501 0.7500 0.1660 0.858 0.4901 0.8501 0.7500 0.1660 0.858 0.4901 0.8501 | | | | | | | | |
| 3.682 | | | | | | | | |
| 4.406 0.9937 - 0.3727 0.9977 0.945 0.8000 - 0.0740 0.817 5.518 0.9951 - 0.1832 0.9868 0.933 0.8500 0.0176 0.777 7.656 0.9952 - 0.3183 0.9767 0.922 0.9000 0.1015 0.739 9.458 0.9944 - 0.3026 0.9955 0.941 0.9500 0.1761 0.706 11.205 0.9937 - 0.2899 0.9983 0.902 0.9750 0.2056 0.694 13.115 0.9854 - 0.2734 0.9898 0.992 1.0000 0.2352 0.680 14.966 0.9847 - 0.2586 0.9431 0.995 1.0000 0.2352 0.680 14.966 0.9847 - 0.2586 0.9431 0.995 1.0000 0.2352 0.680 16.772 0.9832 - 0.2164 0.9330 0.479 1.0000 0.4055 0.601 12.525 0.9938 - 0.2194 0.9257 0.866 0.9000 0.4663 0.576 12.525 0.9938 - 0.2191 0.9257 0.866 0.9000 0.4663 0.576 12.757 0.9939 - 0.1897 0.9129 0.953 0.8000 0.4888 0.587 12.753 0.9939 - 0.1873 0.9919 0.950 0.7500 0.3852 0.612 13.514 0.9822 - 0.1873 0.9919 0.850 0.5500 0.2611 0.669 14.186 0.9821 - 0.1827 0.9089 0.888 0.5500 0.1255 0.729 14.186 0.9821 - 0.1827 0.9089 0.888 0.5500 0.1255 0.729 1 | | | | | | | | |
| 15.518 0.9951 - 0.1432 0.9868 0.934 0.8500 0.0176 0.777 7.656 0.9952 - 0.3183 0.9767 0.922 0.9900 0.1035 0.739 9.458 0.9944 - 0.3026 0.9955 0.914 0.9500 0.1761 0.706 0.1121 0.706 0.1121 0.706 0.9500 0.977 - 0.2899 0.9893 0.992 0.9750 0.2056 0.694 0.9451 0.9050 0.2552 0.680 0.9411 0.9050 0.2552 0.680 0.9411 0.9050 0.9552 0.680 0.9411 0.9500 0.9552 0.680 0.9411 0.9500 0.9552 0.680 0.9411 0.9500 0.9552 0.680 0.9401 0.9500 0.4955 0.601 0.9050 0.4955 0.601 0.9050 0.4955 0.601 0.9500 0.4955 0.601 0.2552 0.9838 - 0.2191 0.9257 0.8661 0.9000 0.4663 0.575 0.6078 0.9832 - 0.2191 0.9257 0.8661 0.9000 0.4663 0.575 0.932 - 0.2013 0.9179 0.9531 0.9000 0.4663 0.575 0.932 - 0.933 0.9197 0.9197 0.9531 0.9000 0.4663 0.575 0.932 - 0.9331 0.9170 0.9531 0.9500 0.2611 0.669 0.9313 0.9170 0.9187 0.9199 0.9511 0.5500 0.2611 0.669 0.601 0.9000 0.2611 0.669 0.601 0.9000 0.2611 0.669 0.9013 0.8501 0.9000 0.2611 0.669 0.601 0.9000 0.2611 0.669 0.9013 0.8501 0.9000 0.2611 0.669 0.9013 0.8501 0.9000 0.2611 0.669 0.9013 0.8501 0.9000 0.2611 0.669 0.9013 0.8501 0.9000 0.2611 0.669 0.9013 0.8501 0.9000 0.0000 0.9013 0.8501 0.9000 0.0000 0.9000 0.9000 0.9000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.9000000 0.900000 0.90000 0.90000 0.90000000000 | | | | | | | | |
| 7.656 0.9952 -0.3183 0.9767 0.922 0.9000 0.1035 0.739 9.458 0.9944 -0.3026 0.9955 0.994 0.9500 0.1781 0.706 11.205 0.9947 -0.2899 0.9583 0.902 0.9750 0.2056 0.694 13.115 0.9854 -0.2714 0.9898 0.992 1.0000 0.2352 0.680 14.966 0.9847 -0.2586 0.9431 0.995 1.0000 0.2352 0.680 14.966 0.9847 -0.2586 0.9431 0.995 1.0000 0.2352 0.680 13.712 0.9938 -0.2164 0.9330 0.479 1.0000 0.4055 0.601 12.525 0.9938 -0.2194 0.9257 0.866 0.9000 0.4663 0.578 12.6.078 0.9932 -0.213 0.9178 0.858 0.8500 0.4662 0.575 12.7.94 0.9939 -0.1897 0.9129 0.853 0.8500 0.4862 0.575 13.514 0.9922 -0.1873 0.9199 0.859 0.5500 0.2611 0.669 14.186 0.9821 -0.1827 0.9089 0.888 0.5500 0.2611 0.669 14.186 0.9821 -0.1827 0.9089 0.888 0.5500 0.1255 0.729 15.186 0.9821 0.1827 0.9089 0.888 0.5500 0.1255 0.729 16.187 0.9082 0.1873 0.919 0.808 0.5500 0.1255 0.729 17.530 0.9821 0.1827 0.9089 0.888 0.5500 0.1255 0.729 18.186 0.9821 0.0082 0.983 0.5000 0.1255 0.729 18.186 0.9821 0.0082 0.988 0.5000 0.0083 0.755 0.706 18.187 0.0080 0.0085 0.755 0.706 0.706 0.706 0.706 0.706 0.706 0.706 0.706 0.706 0.706 0.706 0.706 0.7076 0.7 | | | | | | | | |
| 9.458 0.9944 -0.3026 0.9955 0.914 0.9500 0.1781 0.706 113.115 0.9375 -0.2899 0.9958 0.992 0.9750 0.2056 0.694 113.115 0.9354 -0.2734 0.9498 0.992 1.0000 0.2552 0.680 114.966 0.9487 -0.2866 0.9491 0.9851 LOVER SIDE 116.772 0.9942 -0.2664 0.9376 0.879 1.0000 0.2352 0.680 116.712 0.9938 -0.2164 0.9310 0.874 0.9500 0.4055 0.601 122.525 0.9938 -0.2191 0.9257 0.866 0.9000 0.4663 0.575 126.078 0.9932 -0.213 0.9178 0.5851 0.8500 0.4663 0.575 126.078 0.9932 -0.1897 0.9129 0.9531 0.8000 0.4663 0.575 133.514 0.9822 0.1873 0.9109 0.3501 0.7500 0.3852 0.612 137.533 0.9819 -0.1877 0.9108 0.8501 0.5500 0.2611 147.186 0.9921 -0.1827 0.9089 0.8461 0.5500 0.2611 148.186 0.9921 -0.1827 0.9089 0.8461 0.5500 0.2612 149.186 0.9921 -0.1827 0.9089 0.8461 0.5500 0.2020 0.8020 149.186 0.9921 -0.1827 0.9089 0.8461 0.5500 0.2020 0.8020 149.186 0.9921 -0.1827 0.9089 0.9081 0.8501 0.8500 0.2020 0.8020 149.186 0.9921 -0.1827 0.9089 0.9081 0.8501 0.8500 0.2020 0.8020 0.8020 149.186 0.9921 -0.1827 0.9089 0.9081 0.8501 0.8500 0.00820 0.8020 0. | | | | | | | | |
| 131-115 0.9954 -0.2734 0.9498 0.892 1.0000 0.2952 0.680 144.966 0.9947 -0.2586 0.9943 0.895 1.0007 STDE 16-772 0.9942 -0.2666 0.9976 0.879 1.0000 0.2952 0.680 16-772 0.9942 -0.2164 0.9310 0.874 0.9500 0.4095 0.601 122-52 0.9938 -0.2194 0.9257 0.866 0.9000 0.4663 0.574 126-078 0.9932 -0.213 0.9178 0.4591 0.8500 0.4663 0.575 126-078 0.9932 -0.1873 0.9109 0.953 0.8000 0.4662 0.575 131-514 0.9822 -0.1873 0.9109 0.950 0.7500 0.3852 0.612 131-514 0.9822 -0.1873 0.9109 0.950 0.7500 0.2611 0.699 131-514 0.9822 -0.1873 0.9108 0.850 0.5500 0.2611 0.669 141-186 0.9921 -0.1827 0.9089 0.846 0.5500 0.2611 0.699 141-186 0.9921 -0.1827 0.9089 0.846 0.5500 0.2612 0.796 141-186 0.9921 -0.1827 0.9089 0.846 0.5500 0.0033 0.826 0.795 141-186 0.9921 -0.1827 0.9089 0.946 0.5000 0.0033 0.826 0.795 141-186 0.9921 -0.1827 0.9089 0.9081 0.8500 0.0033 0.826 0.795 141-186 0.0080 0.0033 0.826 0.795 0.836 0.795 0.836 0.795 0.836 0.795 0.836 0.795 0.795 0.836 0.795 0.795 0.836 0.795 0.79 | | | | | | | | |
| 14-966 0.9947 - 0.2586 0.9431 0.895 LOWER SIDE 16-772 0.9942 - 0.2667 0.9976 0.4979 1.0000 0.2352 0.680 13.712 0.9838 - 0.2164 0.9330 0.874 0.9500 0.4055 0.601 0.2575 0.680 0.2552 0.680 0.2552 0.680 0.2552 0.680 0.2575 0.680 0.2575 0.680 0.2575 0.680 0.2575 0.680 0.2575 | 111.205 | 0.9877 | -0.2889 | 0.9583 | 0.9021 | 1 0.9750 | 0.2056 | 0.694 |
| 16.772 | | | | | | | | 0.680 |
| 18.712 0.9838 -0.2164 0.9330 0.874 0.9500 0.4095 0.601 122.525 0.9838 -0.2191 0.927 0.866 0.9000 0.4662 0.574 126.078 0.9832 -0.2013 0.9178 0.858 0.8500 0.4662 0.575 127.794 0.9932 -0.1897 0.9129 0.853 0.8500 0.4662 0.575 137.514 0.9822 -0.1873 0.9199 0.850 0.5500 0.3852 0.612 141.186 0.9821 -0.1873 0.9199 0.850 0.5500 0.2611 0.669 141.186 0.9821 -0.1827 0.9089 0.888 0.5500 0.1255 0.729 158.184 0.9821 0.9827 0.9089 0.888 0.5500 0.1255 0.729 159.185 0.9821 0.9821 0.9821 0.9821 0.9821 0.8000 0.1255 0.729 159.185 0.9821 0.9821 0.9821 0.9821 0.9821 0.826 0.795 159.185 0.9821 0.9821 0.9821 0.9821 0.9821 0.9821 0.826 0.795 159.185 0.9821 0.9821 0.9821 0.9821 0.9821 0.826 0.795 0.9821 0.826 0.795 0.9821 0.826 0.795 0.9821 0.826 0.795 | | | | | | | | |
| 122.525 | | | | | | | | |
| 126.078 | | | | | | | | |
| 1.26 | | | | | | | | |
| 133-514 0.9922 -0.1873 0.9109 0.8501 0.7500 0.3852 0.612 137-533 0.9819 -0.1877 0.9108 0.8501 0.5500 0.2611 0.669 141-186 0.9821 -0.1827 0.9089 0.8481 0.5500 0.1255 0.729 1 | | | | | | | | |
| 17.533 | | | | | | | | |
| 1 | | | | | | | | |
| 0.4500 -0.0262 0.796 | | | | | | | | |
| 1 0.3500 -0.1137 0.835 | 141.10€ | 0. 9021 | -0. 1027 | 0.9009 | | | | |
| 0.2500 | : | | | | | | | |
| | : | | | | | | | |
| (1 0.1500 0.0635 0.757 | | | | | | | | |
| | | | | | | | | 0.757 |
| | | | | | | | | |
| | | | | | | | | 0.654 |
| 1 0.0040 0.7076 0.452 1 0.0 1.1279 0.121 | i | | | | | | 0.3822 | |
| 11 0.0 1.1279 0.121 | 1 | | | | i | | | |
| | 1 | | | | | | | |
| | 1 | | | | | | | |

| (DIST | ANCES |) U(M/S | Р (мин | G) T(DE | G_K) AL | PA (DEG.)) | | ! |
|----------------|---------|----------|----------|----------|----------------|------------|--------|---|
| E | OUNDARY | LAYER PE | PILES | !! | SUBFAC | E PRESSUR | 25 | - |
| 2 | PT/PO | СРВ | U/UE | MB 11 | X/C UPPER S | CP | ML | 1 |
| 0.0 | 0.5580 | -0.3742 | 0.0 | 0.0 11 | 0.0 | 1.1294 | 0.119 | i |
| 0.070 | | -0.3731 | 0.2450 | 0.21111 | 0.0040 | 0.5094 | 0.554 | i |
| 0.150 | | -0.3726 | 0.2763 | 0.23811 | 0.0080 | -0.1478 | 0.851 | i |
| 0.217 | | -0.3718 | 0.2952 | 0. 25511 | 0.0150 | 0. 1947 | 0.699 | i |
| 0.284 | | -0.3711 | 0.3201 | 0.27711 | 0.0250 | -0.3851 | 0.957 | i |
| 0.163 | | -0.3702 | 0.3182 | 0. 27511 | 0.0400 | -0.5194 | 1.020 | i |
| 0.549 | | -0.3681 | 0.3603 | 0.31211 | 0.0600 | -0.6748 | 1.094 | i |
| 0.743 | | -0.3659 | 0.4018 | 0.34911 | 0.0800 | -0.8787 | 1, 199 | í |
| 0.978 | | -0.3651 | 0.4523 | 0.39411 | 0.1000 | -0.9229 | 1,223 | ì |
| 1.109 | 0.6465 | -0.3638 | 0.5192 | 0.45511 | 0. 1400 | -0.9624 | 1.244 | i |
| 1.296 | 0.6687 | -0.3559 | 0.5698 | 0.50111 | 0.1800 | -1.0019 | 1.266 | i |
| 1.490 | 0.6965 | -0.3529 | 0.6299 | 0.55711 | 0.2200 | -1.0061 | 1,269 | 1 |
| 1.669 | 0.7203 | -0.3499 | 0.6855 | 0.61011 | 0.2600 | -1.0092 | 1.271 | i |
| 1.870 | 0.7546 | -0.3519 | 0.7350 | 0.65811 | 0.3000 | -1.0223 | 1.278 | 1 |
| 2.046 | 0.7819 | -0.3485 | 0.7748 | 0.69711 | 0.3400 | -1.0175 | 1.275 | 1 |
| 2.258 | | -0.3462 | 0.8361 | 0.75811 | 0.3800 | -1.0258 | 1.280 | 1 |
| 2.437 | | -0.3478 | 0. 1791 | 0.80211 | 0.4200 | -1.0126 | 1.273 | 1 |
| 2.628 | | -0.3480 | 0.9200 | 0.84411 | 0.4600 | -1.0269 | 1.281 | 1 |
| 2.792 | | -0.3483 | 0.9489 | 0.87511 | 0.5000 | -1.0211 | 1.277 | 1 |
| 2.975 | | -0.3489 | 0.9734 | 0.90111 | 0.5400 | -0.5588 | 1.038 | 1 |
| 3.154 | | -0.3476 | 0.9914 | 0.92011 | 0.5800 | -0.4116 | 0.969 | 1 |
| 3. 363 | | -0.3443 | 0. 9988 | 0.92811 | 0.6200 | -0.3369 | 0.935 | 1 |
| 3.553 | | -0.3404 | 1.0004 | 0.93011 | 0.6600 | -0.2828 | 0.911 | 1 |
| 3.747 | | -0.3397 | 1.0005 | 0.93011 | 0.7000 | -0.2311 | 0.888 | 1 |
| 4.098 | | -0.3361 | 0.9991 | 0.92911 | 0.7500 | -0.1579 | 0.855 | 1 |
| 4.493 | | -0.3233 | 0.9935 | 0.92211 | 0.8000 | -0.0697 | 0.816 | 1 |
| 4.844 | | -0.3215 | 0.9925 | 0.92111 | 0.8500 | 0.0196 | 0.777 | 1 |
| 5.240 | | -0.3214 | 0.9929 | 0.92211 | 0.9000 | 0.1048 | 0.739 | 1 |
| 5.616 | | -0.3178 | 0.9911 | 0.92011 | 0.9500 | 0.1780 | 0.707 | 1 |
| 6.333 | | -0.3174 | 0.9911 | 0.92011 | 0.9750 | 0.2074 | 0.693 | 1 |
| 7.094 8.053 | | -0.3083 | 0.9878 | 0.91611 | 1.0000 | 0.2330 | 0.682 | |
| 9.322 | | -0.3027 | 0.9861 | 0.91411 | LOWER S | | | ! |
| 11,217 | | -0.2795 | | | 1.0000 | 0.2330 | 0.682 | 1 |
| 13.247 | | -0.2793 | 0.9691 | 0.89611 | 0.9500 | 0.4195 | 0.597 | 1 |
| 15. 124 | | -0.2594 | 0.9564 | 0.88811 | 0.9000 | 0.4679 | 0.574 | 1 |
| 18,773 | | -0.2437 | 0.9490 | 0.87511 | 0.8000 | 0.4375 | 0.588 | 1 |
| 22.601 | | -0.2286 | 0.9423 | 0.86811 | 0.7500 | 0.3823 | 0.614 | 1 |
| 26, 142 | | -0.2202 | 0.9386 | 0.86411 | 0.6500 | 0.2610 | 0.669 | i |
| 30.120 | | -0.2119 | 0.9347 | 0.86011 | 0.5500 | 0.1267 | 0.729 | : |
| 33.982 | | -0.2027 | 0.9301 | 0.85511 | 0.4500 | -0.0237 | 0.796 | ; |
| 41.411 | | -0.1971 | 0.9258 | 0.85011 | 0.3500 | -0.1099 | 0.834 | ; |
| | 027014 | | 0. 72 30 | 11 | 0.2500 | -0.0872 | 0.824 | i |
| | | | | ii | 0.2000 | -0.0211 | 0.795 | i |
| | | | | ii | 0.1500 | 0.0675 | 0.756 | i |
| | | | | 11 | 0.1000 | 0. 1834 | 0.704 | ï |
| | | | | ii | 0.0500 | 0.2968 | 0.653 | í |
| | | | | ii | 0.0200 | 0.3842 | 0.613 | i |
| | | | | ii | 0.0080 | 0.4692 | 0.573 | i |
| | | | | ii | 0.0040 | 0.7158 | 0.448 | i |
| | | | | ii | 0.0 | 1. 1294 | 0.119 | i |
| - | | | | | | | | |

| BUN 173 | MA=0.785 | ALFA= 2.52 | PINF=363.4 | PQ=545.5 | TO=305.1 | RE=0.24E 07 | RZ=0.5500 | ZZ= 3.425 | RE=0.973 | UE=312.32 | CPE=-0.4272 | RZ=2.629 | DEL== 1.0649 | THETA= 0.3746 | H=2.843 | CF=0.00075 | CF=0.574NCES(MN) | UR/S) | P(NHHG) | T(DEG,K) | ALFA(DEG,L) | T(DEG,K) | T(DEG,K) | ALFA(DEG,L) | T(DEG,K) | T(DEG,K)

| (DIS | TANCES (MM | 0 (8/5) | P (MMH | G) T (DE | G.K) AL | PA (DEG.)) | | ! |
|---------|------------|-----------|---------|----------|--------------|------------|-------|---|
| | BOUNDARY | LAYER PRO | PILES | 11 | SURFAC | E PRESSUR | ES | - |
| Z | PT/PO | СРВ | U/UE | 8B 11 | E/C UPPER | CP | #L | - |
| 0.0 | 0.5242 | -0.4943 | 0.0 | 0.0 11 | 0.0 | 1. 1295 | 0.118 | i |
| 0.070 | | -0.4902 | 0.2445 | 0.21911 | 0.0040 | 0.5078 | 0.554 | i |
| 0.14 | 0.5507 | -0.4899 | 0.2892 | 0.26011 | 0.0080 | -0.1512 | 0.951 | 1 |
| 0.248 | | -0.4866 | 0.3199 | 0.28811 | 0.0150 | 0.1921 | 0.700 | 1 |
| 0.390 | 0.5633 | -0.4822 | 0.3408 | 0.30744 | 0.0250 | -0.3878 | 0.957 | 1 |
| 1 0.47 | | -0.4797 | 0.3543 | 0.31911 | 0.0400 | -0.5190 | 1.018 | 1 |
| 0.610 | | | 0.3890 | 0.35111 | 0.0600 | -0.6747 | 1.093 | 1 |
| 0.75 | | -0.4710 | 0.4469 | 0.40511 | 0.0800 | -0.8817 | 1.199 | 1 |
| 0.94 | | -0.4652 | 0.5077 | 0.46211 | 0.1000 | -0.9273 | 1.223 | 1 |
| 1 1.125 | | -0.4828 | 0.6069 | 0.55811 | 0.1400 | -0.9674 | 1.245 | ! |
| 1.31 | | -0.4660 | 0.7539 | 0.70511 | C. 2200 | -1.0104 | 1.269 | : |
| 1.68 | | -0.4644 | 0.8167 | 0.77011 | 0.2600 | -1.0155 | 1.272 | ; |
| 1.866 | | -0.4543 | 0.8656 | 0.82311 | 0.3000 | -1.0265 | 1.279 | ; |
| 2.07 | | -0.4538 | 0.9087 | 0.87011 | 0.3400 | -1.0266 | 1.279 | i |
| 2. 26 | | -0.4518 | 0.9450 | 6.91011 | 0.3800 | -1.0312 | 1.281 | i |
| 2.435 | | -0.4522 | 0.9741 | 0.94311 | 0.4200 | -1.0160 | 1.273 | i |
| 2.62 | | -0.4535 | 0.9949 | 0.96711 | 0.4600 | ~1.0291 | 1.280 | i |
| 2.790 | | -0.4518 | 1.0018 | 0.97511 | 0.5000 | -1.0161 | 1.273 | i |
| 2.99 | | -0.4504 | 1.0061 | 0.98011 | 0.5400 | -0.5270 | 1.022 | i |
| 3.170 | 0.9942 | -0.4379 | 1.0023 | 0.97511 | 0.5800 | -0.3965 | 0.961 | 1 |
| 3.375 | 0.9954 | -0.4256 | 0.9983 | 0.97111 | 0.6200 | -0.3387 | 0.935 | 1 |
| 3.54 | | -0.4206 | 0.9970 | 0.96911 | 0.6600 | -0.2902 | 0.913 | |
| 4. 29 | | -0.4000 | 0.3896 | 0.96111 | 0.7000 | -0.2434 | 0.892 | 1 |
| 5.431 | | -0.3658 | 0. 1770 | 0.94611 | 0.7500 | -0.1727 | 0.861 | 1 |
| 7.319 | | -0.3329 | 0.3634 | 0.93111 | 0.8000 | -0.0807 | 0.820 | 1 |
| 9.390 | | -0.2986 | 0.9449 | 0.91011 | 0.8500 | 0.0139 | 0.778 | 1 |
| 11. 140 | | -0.2580 | 0.9224 | 0.88511 | 0.9000 | 0.1033 | 0.739 | 1 |
| 12.890 | | -0.2091 | 0.9012 | 0.86111 | 0.9500 | 0.1772 | 0.706 | 1 |
| 14.950 | | -0.1799 | 0.8890 | 0.83911 | 1.0000 | 0.2339 | 0.681 | 1 |
| 18.57 | | -0.1527 | 0. 3767 | 0.83511 | LOWERS | | 0.001 | ď |
| 20.66 | | -0.1428 | 0.8726 | 0.83011 | 1.0000 | 0.2338 | 0.681 | i |
| 22.336 | | -0.1354 | 0. 8696 | 0.82711 | 0.9500 | 0.4185 | 0.596 | i |
| 26. 23 | | | 0.8684 | 0.82611 | 0.9000 | 0.4638 | 0.575 | i |
| 23.670 | | -0.1326 | 0.8691 | 0.82611 | 0.8500 | 0.4638 | 0.575 | i |
| 33.40 | | -0.1301 | 0.8693 | 0.82711 | 0.8000 | 0.4384 | 0.587 | ì |
| 37.491 | | -0.1286 | 0.8704 | 0.82811 | 0.7500 | 0.3839 | 0.612 | |
| 40.63 | | -0.1379 | 0.8752 | 0.83311 | 0.6500 | 0.2597 | 0.669 | |
| | | | | 11 | 0.5500 | 0.1244 | 0.730 | 1 |
| | | | | 11 | 0.4500 | -0.0293 | 0.797 | 1 |
| | | | | - 11 | 0.3500 | -0.1165 | 0.836 | 1 |
| | | | | 11 | 0.2500 | -0.0957 | 0.827 | 1 |
| | | | | 11 | 0.2000 | -0.0260 | 0.796 | 1 |
| | | | | 11 | 0.1500 | 0.0627 | 0.757 | 1 |
| | | | | !! | 0.1000 | 6. 1782 | 0.706 | ! |
| | | | | !! | 0.0500 | 0.2927 | 0.654 | 1 |
| | | | | !! | 0.0200 | 0.3838 | 0.613 | |
| | | | | - 11 | 0.0040 | 0.7149 | 0.448 | 1 |
| | | | | - 11 | 0.0 | 1.1295 | 0.118 | 1 |
| | | | | !! | | 141633 | 9 | |

Table 3.6 Continued

| RUH 170 | MA=0.785 | ALFA= 2.52 | PIHF=363.1 | PO=545.5 | TO=301.9 | RE=0.24E 07 | RZ=0.5200 | ZE= 2.652 | RE=1.093 | UE=341.99 | CPE=-0.6801 | CPE= 2.054 | DEL= 2.054 | DEL= 2.054 | DEL= 0.6228 | THETA= 0.2471 | H=2.549 | CF=0.00143 | (DISTANCES(AM) | U(M/S) | P(MBHG) | T(DEC.K) | ALFA(DEC.) |

| i | | | | | / | | | | |
|------|-------|----------|--------------------|--------|---------|----------|--------------------|-------|--|
| 1 | ! | POUNDARY | LAYER PE | OFILES | | | E PRESSUR | ES | |
| 1 | 2 | PT/PO | СРВ | U/UE | MB I | I X/C | CP | ML | |
| 1 0. | | | -0.7659 | 0.0 | 0.0 11 | 0.0 | 1.1359 | 0.107 | |
| | .070 | | -0.7507 | 0.4375 | 0.4381 | | 0.5135 | 0.552 | |
| | 132 | | -0.7476 | 0.4752 | 0.4771 | | -0.1465 | 0.850 | |
| | 166 | | -0.7429 | 0.4792 | 0.4811 | | 0.1979 | 0.697 | |
| | 207 | | -0.7372 | 0.5139 | 0.5181 | 0.0250 | -0.3820 | 0.956 | |
| | 252 | | -0.7310 -0.7253 | 0.5336 | 0.5391 | | -0.5189 -0.6731 | 1.019 | |
| | 319 | | -0.7217 | 0.5446 | 0.5511 | | -0.8806 | 1.199 | |
| | 349 | | -0.7175 | 0.5462 | 0.5521 | | -0.9266 | 1.224 | |
| | 446 | | -0.7040 | 0.5761 | 0.5851 | | -0.9668 | 1.246 | |
| | 502 | | -0.6963 | 0.6019 | 0.6131 | | -1.0070 | 1.269 | |
| | 572 | | -0.6864 | 0.6294 | 0.6431 | | -1.0100 | 1.271 | |
| | 051 | | -0.6755 | 0.6598 | 0.6771 | | -1.0141 | 1.273 | |
| 1 0. | 714 | | -0.6667 | 0.6817 | 0.7011 | | -1.0244 | 1.279 | |
| | 807 | | -0.6538 | 0.7166 | 0.7411 | | -1-0254 | 1.279 | |
| | 863 | | -0.6460 | 0.7434 | 0.7721 | | -1.0301 | 1.282 | |
| | 946 | | -0.6346 | 0.7625 | 0.7941 | | -1.0179 | 1.275 | |
| | 076 | | -0.6990 | 0.8352 | 0.8811 | | -1.0295 | 1.282 | |
| | 143 | | -0.6644 | 0.8333 | 0.8791 | | -1.0292 | 1.282 | |
| | 393 | | -0.7685 | 0.8958 | 0.9571 | | -0.5026 -0.3912 | 0.960 | |
| | 505 | | -0.7427 | 0.9428 | 1.017 | | -0.3912 | 0.960 | |
| | 628 | | -0.7543 | 0.9538 | 1.0311 | | -0.2927 | 0.915 | |
| | 849 | | -0.7543 | 0.9989 | 1.0911 | | -0.2492 | 0.896 | |
| | 054 | | -0.7717 | 1.0214 | 1. 1221 | | -0.1812 | 0.865 | |
| | 263 | | -0.6898 | 0.9908 | 1.0801 | | -0.0856 | 0.823 | |
| | 412 | | -0.6632 | 0.9927 | 1.0831 | | 0.0128 | 0.779 | |
| | 610 | | -0.7056 | 1.0096 | 1.1061 | | 0.1058 | 0.738 | |
| 1 2. | 964 | | -0.7158 | 1.0142 | 1. 1121 | 0.9500 | 0.1834 | 0.704 | |
| | 737 | | -0.7239 | 1.0170 | 1.1161 | | 0.2179 | 0.689 | |
| | 647 | | -0.6955 | 1.0039 | 7-0981 | | 0.2479 | 0.675 | |
| | 546 | | -0.7231 | 1.0131 | 4.1111 | | | | |
| | . 371 | | -0.8288 | 1.0486 | 1.1601 | | 0.2479 | 0.675 | |
| | 386 | | -0.8818 | 1.0685 | 1.1881 | | 0.4255 | 0.594 | |
| | 968 | | -0.8880 | 1.0702 | 1. 1901 | | 0.4705 | 0.572 | |
| | 636 | | -0.8780 | 1.0666 | 1.1851 | | 0.4657 | 0.575 | |
| | 296 | | -0.8564 | 1.0589 | 1. 1741 | | 0.4372 | 0.614 | |
| | 994 | | -0.8473 | 1.0555 | 1. 1691 | | 0.2594 | 0.670 | |
| | 591 | | -0.8359 | 1.0518 | 1. 1641 | | 0-1244 | 0.730 | |
| | 479 | | -0.8332 | 1.0510 | 1. 1631 | | -0.0287 | 0.798 | |
| | 195 | | -0.8257 | 1.0481 | 1.1591 | | -0.1162 | 0.836 | |
| 1 | | * | | | i | | -0.0942 | 0.827 | |
| 1 | | | | | 1 | | -0.0234 | 0.795 | |
| 1 | | | | | - 1 | | 0.0614 | 0.758 | |
| 1 | | | | | 1 | | 0.1766 | 0.707 | |
| 1 | | | | | 1 | | 0.2903 | 0.656 | |
| 1 | | | | | 1 | | 0.3801 | 0.615 | |
| 1 | | | | | 1 | | 0.4663 | 0.574 | |
| ! | | | | | 1 | | 0.7183 | 0.447 | |
| | | | | | ! | | 1. 1359 | 0.107 | |
| | | | | | | <u> </u> | | | |

| В | OUNDARY LAYER F | POPILES | 11 | SURPAC | E PRESSOR | ES |
|---------|-----------------|---------|----------|----------------|-----------|------------|
| z | PT/PC CPB | U/U E | MB 11 | X/C UPPER S | CP | ML |
| 0.0 | 0.3714 -1.0239 | 0.0 | 0.0 11 | 0.0 | 1. 1292 | 0.120 |
| 0.070 | 0.4743 -1.0242 | | 0.60211 | 0.0040 | 0.5085 | 0.554 |
| 0.102 | 0.4824 -1.0244 | | 0.62311 | 0.0080 | -0-1480 | 0.851 |
| 0.139 | 0.4947 -1.0249 | | 0.65411 | 0.0150 | 0.1927 | 0.700 |
| 0.173 | 0.5106 -1.0247 | | 0.69111 | 0.0250 | -0.3828 | 0.956 |
| 0.210 | 0.5242 -1.0249 | 0.0176 | 0.72011 | 0.0400 | -0.5180 | 1.019 |
| 0.251 | 0.5191 -1.0251 | 0.6095 | 0.71011 | 0.0600 | -0.6734 | 1.094 |
| 0.303 | 0.5452 -1.0253 | | 0.76211 | 0.0800 | -0.8800 | 1.199 |
| 0.345 | 0.5721 -1.0259 | 0.6876 | 0.81211 | 0.1000 | -0.9260 | 1.224 |
| 0.438 | 0.5827 -1.0260 | 0.7014 | 0.83011 | 0.1400 | -0.9667 | 1.247 |
| 0.505 | 0.6091 -1.0263 | 0.7329 | 0.87311 | 0.1800 | -1.0075 | 1.269 |
| 0.580 | 0.6412 -1.0267 | 0.7674 | 0.92111 | 0.2200 | -1.0091 | 1.270 |
| 0.651 | 0.6564 -1.0270 | 0.7824 | 0.94211 | 0.2600 | -1.0135 | 1.273 |
| 0.729 | 0.6859 -1.3274 | 0.8097 | 0.98111 | 0.3000 | -1.0238 | 1.279 |
| 0.803 | 0.7139 -1.0278 | 0.8334 | 1.01611 | 0.3400 | -1.0253 | 1.280 |
| 0.893 | 0.7421 -1.0282 | 0.8555 | 1.04811 | 0.3800 | -1.0272 | 1.281 |
| 0.949 | 0.7562 -1.3285 | 0.8660 | 1.06411 | 0.4200 | -1.0145 | 1.273 |
| 1.024 | 0.7772 -1.0282 | 0.8806 | 1.08611 | 0.4600 | -1.0270 | 1.281 |
| 1.117 | 0.8137 -1.0279 | | 1.12311 | 0.5000 | -0.9952 | 1.263 |
| 1.195 | 0.8358 -1.0253 | 0.9171 | 1.14311 | 0.5400 | -0.5608 | 1.039 |
| 1.262 | 0.8518 -1.0269 | 0.9271 | 1.15911 | 0.5800 | -0.4172 | 0.972 |
| 1.341 | 0.8739 -1.0265 | | 1. 17811 | 0.6200 | -0.3467 | 0.940 |
| 1.430 | 0.9001 -1.0254 | | 1.20011 | | -0.3076 | 0.922 |
| 1.505 | 0.9229 -1.0271 | | 1.22011 | 0.7000 | -0.2683 | 0.904 |
| 1.583 | 0.9419 -1.0241 | | 1.23411 | | -0.1908 | 0.870 |
| 1.665 | 0.9577 -1.0270 | | 1.24811 | | -0.0841 | 0.822 |
| 1.748 | 0.9711 -1.0280 | | 1.25911 | | 0.0187 | 0.777 |
| 1.919 | 0.9853 -1.0268 | | 1.27011 | | 0.1111 | 0.736 |
| 2.124 | 0.9913 -1.0298 | | 1.27611 | | 0.1874 | 0.702 |
| 2.307 | 0.9912 -1.0289 | | 1.27511 | | 0.2204 | 0.688 |
| 2.505 | 0.9309 -1.0301 | | 1.27611 | | 0.2473 | 0.675 |
| 3.039 | 0.9890 -1.0307 | | 1.27511 | | | The Commen |
| 3.792 | 0.9875 -1.0342 | | 1. 27511 | | 0.2473 | 0.675 |
| 5.833 | 0.9937 -1.0313 | | 1.27811 | | 0.4224 | 0.595 |
| 7.602 | 0.9912 -1.0203 | | 1. 27011 | | 0.4714 | 0.572 |
| 9.777 | 09916 -1.0119 | | 1.26611 | | 0.4690 | 0.573 |
| 11.535 | 0.9921 -1.0094 | | 1. 26511 | | 0.4421 | 0.586 |
| 15. 139 | 0.9927 -1.0000 | | 1.26011 | | 0.3888 | 0.611 |
| 18.979 | 0.9925 -0.9913 | | 1. 25511 | | 0.2643 | 0.668 |
| 22.516 | 0.9934 -0.9821 | | 1.25011 | | 0.1272 | 0.729 |
| 26.199 | 0.9942 -0.9716 | | 1. 24511 | | -0.0247 | 0.796 |
| 29.833 | 0.9938 -0.9587 | | 1-23711 | | -0.1123 | 0.835 |
| 38.053 | 0.9931 -0.9282 | 0.9652 | 1. 22011 | | -0.0926 | 0.826 |
| | | | !! | 0.2000 | -0.0234 | 0.796 |
| | | | . !! | | 0.0627 | 0.758 |
| | | | | | 0.1769 | 0.707 |
| | | | !! | 0.0500 | 0. 2918 | 0.655 |
| | | | !! | 0.0200 | 0.3810 | 0.614 |
| | | | !! | | 0.4657 | 0.575 |
| | | | !! | 0.0040 | 0.7150 | 0.448 |
| | | | 11 | 0.0 | 1. 1292 | 0.120 |

| RUN 175 | MA=0.785 | ALFA= 2.52 | PINF=363.3 | PO=545.7 | TO=302.4 | PE=0.24E | 07 | PO=545.7 | PO=545.7 | TO=302.4 | PO=545.7 | P

| (DIST | ANCES (MK |) U(M/S) | P (MMH | G) T(DE | .K) AL | FA (DEG.)) | |
|---------|-----------|-----------|---------|----------|---------|------------|------|
| ŀ | CUNDARY | LAYER PRO | PILES | 11 | SURPAC | E PRESSOR | ES |
| z | PT/PO | CPB | O/UE | MB 11 | X/C | CP | HL |
| | | | | 11 | UPPER S | | |
| 0.0 | 0.3773 | | 0.0 | 0.0 11 | 0.0 | 1. 1376 | 0.10 |
| 0.070 | 0.4804 | | 0.5278 | 0.59311 | 0.0040 | 0.5167 | 0.55 |
| 0.104 | 0.4875 | | 0.5418 | 0.61011 | 0.0080 | -0.1457 | 0.84 |
| 0.133 | 0.4909 | | 0.5474 | 0.61711 | 0.0150 | 0.1995 | 0.69 |
| 0.160 | 0.4936 | | 0.5517 | 0.62211 | 0.0250 | -0.3804 | 0.95 |
| 0.189 | 0.5012 | | 0.5656 | 0.63911 | 0.0400 | -0.5127 | 1.01 |
| 0.230 | 0.5167 | | 0.5930 | 0.67311 | 0.0600 | -0.6695 | 1.09 |
| 0.275 | 0.5266 | | 0.6086 | 0.69211 | 0.0800 | -0.8779 | 1.19 |
| 0.305 | 0.5288 | | 0.6110 | 0.69511 | 0.1000 | -0.9224 | 1.22 |
| 0.339 | 0.5313 | | 0.6138 | 0.69911 | 0.1400 | -0.9641 | 1.24 |
| 0.376 | 0.5427 | | 0.6310 | 0.72011 | 0.1800 | -1.0058 | 1.26 |
| 0.466 | 0.5712 | | 0.6704 | 0.77011 | 0.2200 | -1.0090 | 1.27 |
| 0.548 | | -0.9694 | 0.6166 | 0.80411 | 0.2600 | -1.0131 | 1.27 |
| 0.604 | 0.6083 | | 0.7141 | 0.32711 | 0.3000 | -1.0246 | 1.27 |
| 0.674 | 0.6228 | | 0.7290 | 0.84711 | 0.3400 | -1.0256 | 1.27 |
| 0.742 | 0.6516 | | 0.7587 | 0.88711 | 0.3800 | -1.0310 | 1.28 |
| 0.831 | 0.6699 | | 0.7747 | 0.90811 | 0.4200 | -1.0149 | 1.27 |
| 0.917 | 0.6879 | | 0.7896 | 0.92911 | 0.4600 | -1.0308 | 1.28 |
| 0.984 | | -0.9432 | 0.8080 | 0.95411 | 0.5000 | -1.0041 | 1.26 |
| 1.063 | | -0.9244 | 0.8182 | 0.96911 | 0.5400 | -0.5296 | 1.02 |
| 1.141 | | -0.9482 | 0.8490 | 1.01211 | 0.5800 | -0.3975 | 0.96 |
| 1.193 | | -0.9533 | 0.8589 | 1.02711 | 0.6200 | -0.3352 | 0.93 |
| 1.313 | | -0.9499 | 0.8742 | 1.04911 | 0.6600 | -0.2925 | |
| 1.443 | | -0.9605 | 0.9013 | 1.08911 | 0.7000 | -0.2528 | 0.89 |
| 1.551 | 0.8627 | -0.9494 | 0.9232 | 1.12211 | 0.7500 | -0.1804 | 0.82 |
| 1.641 | | -0.9699 | 0.9581 | 1.17611 | 0.8500 | 0.0094 | 0.78 |
| 1.876 | | -0.9903 | 9.9823 | 1.21411 | 0.9000 | 0.1025 | 0.74 |
| 2.018 | 0.9798 | | 0.9999 | 1.24311 | 0.9500 | 0.1781 | 0.70 |
| 2.208 | | -0.9762 | 1.0014 | 1. 24511 | 0.9750 | 0.2126 | 0.69 |
| 2.387 | | -0.9994 | 1.0118 | 1. 26211 | 1.0000 | 0.2421 | 0.67 |
| 2.716 | | -0.9913 | 1.0072 | 1.25511 | LOWES S | | 0.07 |
| 3.820 | 0.9931 | | 0.9951 | 1-23511 | 1.0000 | 0.2421 | 0.67 |
| 5.678 | | -0.9343 | 0.9849 | 1. 21911 | 0.9500 | 0.4199 | 0.59 |
| 7.559 | | -0.9307 | 0.9828 | 1. 21511 | 0.9000 | 0.4640 | 0.57 |
| 9.663 | | -0.9562 | 0.9918 | 1.23011 | 0.8500 | 0.4609 | 0.57 |
| 11.305 | 0.9877 | | 0.9969 | 1 23811 | 0.8000 | 0.4333 | 0.59 |
| 13.484 | | -0.9592 | 0.9935 | 1. 23211 | 0.7500 | 0.3803 | 0.61 |
| 15. 395 | | -0.9644 | 0.9956 | 1.23611 | 0.6500 | 0.2581 | 0.67 |
| 18.831 | | -0.7684 | 0.9973 | 1.23811 | 0.5500 | 0.1226 | 0.73 |
| 22.663 | | -0.9624 | 0. 1953 | 1.23511 | 0.4500 | -0.0278 | 0.79 |
| 26.383 | | -0.9597 | 0. 1950 | 1.23511 | 0.3500 | -0.1153 | 0.83 |
| 30.152 | 0.9905 | | 0.7918 | 1.23011 | 0.2500 | -0.0919 | 0.82 |
| 33.682 | | -0.9410 | 0.9888 | 1. 22511 | 0.2000 | -0.0262 | 0.79 |
| 38.003 | 0.9910 | | 0. 1960 | 1.22011 | 0.1500 | 0.0642 | 0.75 |
| | | | | 11 | 0.1000 | 0.1799 | 0.70 |
| | | | | ii | 0.0500 | 0.2955 | 0.05 |
| | | | | ii | 0.0200 | 0.3857 | 0.61 |
| | | | | ii | 0.0080 | 0.4748 | 0.57 |
| | | | | ii | 0.0040 | 0.7133 | 0.44 |
| | | | | ii | 0.0 | 1.1376 | 0.10 |
| | | | | | | | |

RUN 177 MA=0.785 ALFA= 2.52 PINF=363.5 PO=545.9 TO=301.9

RE=0.24E 07

IX/C= 0.4200 ZE= 2.186 ME=1.266 UE=383.72 CPE=-1.0162

IDEL= 1.521 DEL== 0.3669 THETA= 0.1586 H=2.313 CP=0.00269

(DISTANCESIMAL UM/S) P(MMG) TOPE X ALFACRE.

| (DI | STANCES (MI | 1) U (M/S) | P (MMH | G) T (DE | G.K) AL | PA (DEG.)) | |
|--------|-------------|-------------|---------|----------|---------|------------|--------|
| | BOUNDARY | LAYER PRO | PILES | !! | SURPAC | E PRESSUE | ES |
| z | PT/PO | CPB | U/UE | MB !! | X/C | CP | BL |
| 0.0 | 0 3743 | -1.0162 | 0.0 | 0.0 11 | OPPER S | 1. 1336 | 0.111 |
| 0.07 | | -1.0162 | 0.5291 | 0.60411 | 0.0040 | 0.5114 | 0.552 |
| 0.10 | | -1.0162 | 0.5567 | 0.63811 | 0.0080 | -0. 1492 | 0.851 |
| 0. 13 | | -1.0162 | 0.5669 | 0.65011 | 0.0150 | 0. 1971 | 0.697 |
| 0.16 | | -1.0162 | 0.6121 | 0.70711 | 0.0250 | -0. 3856 | 0.957 |
| 0. 18 | | -1.0162 | 0.6451 | 0.75011 | 0.0400 | -0.5164 | 1.017 |
| 0.21 | | -1.0162 | 0.6745 | 0.78811 | 0.0600 | -0.6739 | 1.093 |
| 0. 26 | | -1.0162 | 0.7089 | 0.83311 | 0.0800 | -0.8803 | 1. 198 |
| 0.294 | | -1.0162 | 0.7236 | 0.85311 | 0.1000 | -0.9235 | 1.222 |
| 0.33 | | -1.0162 | 0.7420 | 0.87811 | 0.1400 | -0.9648 | 1.244 |
| 0.38 | | -1.0162 | 0.7537 | 0.89411 | 0.1800 | -1-0061 | 1.267 |
| 0.42 | | | 0.7694 | 0.91611 | 0.2200 | -1.0074 | 1.268 |
| 0.454 | | -1.0162 | 0.7773 | 0.92711 | | -1.0128 | 1.271 |
| 0.56 | | -1.0162 | 0.8115 | 0.97511 | 0.3000 | -1.0250 | 1.278 |
| 0.60 | | -1.0162 | 0.8239 | 0.99311 | 0.3400 | -1.0224 | 1.277 |
| 0.674 | | -1.0162 | 0.8437 | 1.02211 | 0.3800 | -1.0311 | 1.282 |
| 0.768 | | | 0.8596 | 1-04511 | 0.4200 | -1-0162 | 1.273 |
| 0.83 | 1 0.7644 | -1.0162 | 0.8721 | 1.06411 | 0.4600 | -1.0200 | 1.275 |
| 0.898 | 0.7889 | -1.0162 | 0.8891 | 1.09011 | 0.5000 | -0.9803 | 1.253 |
| 0.980 | 0.8154 | -1.0162 | 0.9066 | 1.11611 | 0.5400 | -0.5322 | 1.025 |
| 1.05 | 1 0-8477 | -1.0162 | 0.9265 | 1-14711 | 0.5800 | -0.4124 | 0.969 |
| 1. 152 | 0.8860 | -1.0162 | 0.9483 | 1. 18111 | 0.6200 | -0.3591 | 0.945 |
| 1.212 | 0.9058 | -1.0162 | 0.9589 | 1.19811 | 0.6600 | -0.3288 | 0.931 |
| 1.28 | 0.9177 | -1.0162 | 0.9651 | 1.20911 | 0.7000 | -0.2874 | 0.912 |
| 1. 369 | | -1.0162 | 0.9741 | 1.22311 | 0.7500 | -C. 1964 | 0.871 |
| 1.454 | | -1.0162 | 0.9854 | 1.24211 | 0.8000 | -0.0826 | 0.821 |
| 1.521 | | -1.0162 | 0.9923 | 1.25311 | 0.8500 | 0.0248 | 0.774 |
| 1.596 | | -1.0162 | 0.9967 | 1.26011 | 0.9000 | 0.1140 | 0.734 |
| 1.70 | | -1.0162 | 0.9978 | 1.26211 | 0.9500 | 0.1846 | 0.703 |
| 1.798 | | -1.0162 | 0.9990 | 1. 26411 | 0.9750 | 0.2103 | 0.692 |
| 1.898 | | -1.0162 | 0.9996 | 1.26511 | 1.0000 | 0.2333 | 0.681 |
| 2.152 | | -1.0162 | 0.9994 | 1. 26511 | LOWER S | | |
| 2.492 | | -1.0162 | 0.9994 | 1.26511 | 1.0000 | 0.2333 | 0.681 |
| 2.753 | | -1.0162 | 0.9995 | 1. 26511 | 0.9500 | 0.4124 | 0.599 |
| 3.839 | | -1.0162 | 0.9983 | 1.26311 | 0.9000 | 0.4659 | 0.574 |
| 5.730 | | -1.0162 | 1.0015 | 1.26811 | 0.8500 | 0.4645 | 0.575 |
| 7.563 | | -1.0162 | 1.0005 | 1-26711 | 0.8000 | 0.4396 | 0.587 |
| 11.301 | | -1.0162 | 1.0010 | 1.26811 | 0.7500 | 0.3860 | 0.612 |
| 15.447 | | -1.0162 | 1.0014 | 1.26811 | 0.6500 | 0.2636 | 0.668 |
| 2.570 | | -1.0162 | 1.0023 | 1.27011 | 0.5500 | 0.1260 | 0.729 |
| 6. 380 | | -1.0162 | 1.0032 | 1.27211 | 0.4500 | -0.0269 | 0.835 |
| G. 227 | | -1.0162 | 1.0037 | 1.27311 | 0. 3500 | -0.1147 | 0.835 |
| 33.984 | | -1.0162 | 1.0050 | 1. 27411 | 0.2000 | -0.0232 | 0.795 |
| 37.850 | | -1.0162 | 1.0056 | 1.27511 | 0.1500 | 0.0632 | 0.757 |
| | | | | 1.2/5[1 | 0.1000 | 0.1788 | 0.706 |
| Note: | Since a sta | atic probe | еакаде | | 0.0500 | 0.2950 | 0.653 |
| | | he static p | | vas set | 0.0200 | 0. 3848 | 0.612 |
| | equal to th | e surface p | ressure | ii | 0.0080 | 0.4686 | 0.573 |
| | | | | ii | 0.0040 | 0.7094 | 0.451 |
| | | | | | 0.0 | 1 1116 | |

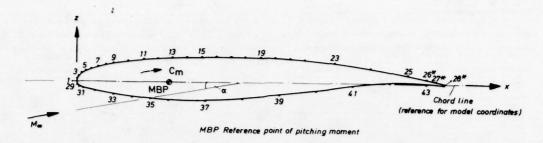
Table 3.6 Concluded

| 180. | 197 8 | A=0.785 | ALPA= | 2.50 PI | NF=362.5 | PO=544.6 | TO=303. 4 |
|--------|--------|---------|---------|----------|-----------|----------|-----------|
| 1 | | E=0.248 | | | | | |
| 1 X/C= | 0.800 | 0 ZE= | 6.962 | BB=0.792 | UB=260.6 | 7 CPB=-0 | .0254 |
| 1 | | | | | | | |
| IDEL= | 5.013 | DEL . | 1.7311 | THETA= | 0.7812 H | =2.216 C | P=0.00116 |
| 1 (D | ISTANC | ES (MM) | U (M/S) | P (MMHG) | T (DEG. K |) ALPA(D | EG.)) |
| | | | | | | | |

| В | OUNDARY | TWARE DE | OPILES | 11 | SUBPAC | E PRESSUR | ES |
|--------|---------|----------|--------|---------|----------------|-----------|-------|
| Z | PT/PO | СРВ | O\OR | MB | I/C UPPER S | CP IDE | ML |
| 0.0 | 0.6538 | -0.0410 | 0.0 | 0.0 11 | 0.0 | 1. 1324 | 0.114 |
| 0.070 | 0.6769 | -0.0410 | 0.2976 | 0.22311 | 0.0040 | 0.5116 | 0.553 |
| 0.144 | 0.6854 | -0.0410 | 0.3464 | 0.26011 | 0.0080 | -0.1485 | 0.851 |
| 0.222 | 0.6902 | -0-0411 | 0.3714 | 0.27911 | 0.0150 | 0.1976 | 0.698 |
| 0.338 | | -0.0411 | 0.3896 | 0.29311 | 0.0250 | -0.3788 | 0.954 |
| 0.465 | | -0.0412 | 0.4091 | 0.30811 | 0.0400 | -0-5140 | 1.017 |
| 0.562 | | -0.0412 | 0.4243 | 0.32011 | | -0.7094 | 1.111 |
| 0.666 | | -0-0413 | 0.4342 | 0.32811 | 0.0800 | -0.8407 | 1.179 |
| 0.797 | 0.7087 | -0.0414 | 0.4524 | 0.34211 | 0.1000 | -0.9077 | 1.214 |
| 0.931 | 0.7112 | -0-0414 | 0.4622 | 0.34911 | 0.1400 | -0.9461 | 1.235 |
| 1.125 | 0.7169 | -0.0406 | 0.4823 | 0.36511 | | -0.9845 | 1.256 |
| 1.319 | 0.7253 | -0.0416 | 0.5127 | 0.38811 | 0.2200 | -1-0243 | 1.279 |
| 1.693 | 0.7452 | -0.0428 | 0.5753 | 0.43811 | 0.2600 | -1.0038 | 1.267 |
| 2.051 | 0.7654 | -0.0432 | 0.6304 | 0.48111 | 0.3000 | -1.0155 | 1.274 |
| 2.431 | 0.7893 | -0.0428 | 0.6870 | 0.52711 | 0.3400 | -1.0181 | 1.276 |
| 2.812 | 0.8164 | -0.0425 | 0.7438 | 0.57311 | 0.3800 | -1.0251 | 1.279 |
| 3. 193 | 0.8541 | -0.0414 | 0.8123 | 0.63011 | 0.4200 | -1.0147 | 1.274 |
| 3.573 | 0.8893 | -0.0400 | 0.8682 | 0.67711 | 0.4600 | -1.0275 | 1.281 |
| 3.939 | | -0.0385 | 0.9125 | 0.71511 | 0.5000 | -1.0339 | 1.285 |
| 4.308 | 0.9481 | -0.0363 | 0.9482 | 0.74611 | 0.5400 | -0.6161 | 1.066 |
| 4.666 | 0.9697 | -0.0344 | 0.9741 | 0.76911 | 0.5800 | -0.4024 | 0.965 |
| 5.013 | | -0.0328 | 0.9888 | 0.78211 | | -0.3232 | 0.929 |
| 5.405 | 0.9905 | -0.0318 | 0.9975 | 0.79011 | 0.6600 | -0.2717 | 0.906 |
| 5.793 | | -0.0301 | 0.9993 | 0.79111 | | -0.2177 | 0.882 |
| 6.360 | 0.9939 | -0.0278 | 0.9994 | 0.79111 | 0.7500 | -0.1338 | 0.844 |
| 7.107 | | -0.0246 | 0.9975 | 0.79011 | | -0.0410 | 0.803 |
| 7.920 | | -0.0230 | 0.9965 | 0.78911 | | 0.0481 | 0.764 |
| 9.368 | | -0.0207 | 0.9931 | 0.78611 | | 0.1285 | 0.728 |
| 1.56€ | | -0.0176 | 0.9802 | 0.77411 | | 0.1941 | 0.699 |
| 3.088 | | -0.0165 | 0.9769 | 0.77111 | | 0-2209 | 0.68 |
| 5.181 | | -0.0152 | 0.9757 | 0.77011 | | 0.2434 | 0.677 |
| 7.334 | | -0.0132 | 0.9754 | 0.77011 | | | |
| 8.946 | | -0.0123 | 0.9752 | 0.77011 | | 0.2434 | 0.677 |
| 1.084 | | -0.0115 | 0.9753 | 0.77011 | | 0.4124 | 0.600 |
| 2.476 | | -0-0111 | 0.9756 | 0.77011 | | 0.4554 | 0.580 |
| 4.386 | | -0.0108 | 0.9763 | 0.77111 | | 0.4512 | 0.582 |
| 6.312 | | -0.9104 | 0.9767 | 0.77111 | | 0-4241 | 0.594 |
| 8.263 | | -0.0099 | 0-9774 | 0.77211 | | 0.3751 | 0.617 |
| 9.875 | | -0.0091 | 0.9775 | 0.77211 | | 0.2550 | 0.672 |
| 3.666 | | -0.0088 | 0.9793 | 0.77411 | | 0.1168 | 0.734 |
| 6.289 | 0.9851 | -0.0085 | 0.9794 | 0.77411 | | -0.0220 | 0.799 |
| | | | | 11 | | -0. 1115 | 0.839 |
| | | | | 11 | 0.2500 | -0.0932 | 0.826 |

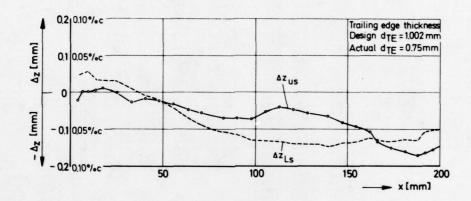
| 60.67 CPI | =-0.0254 | | 1X/C= 0. | 9000 ZE | = 9.728 | ME=0.72 | 5 UE=24 | 0.51 CP | E= 0.1304 | |
|------------------------|--------------------|---------|----------|-----------|----------|---------|----------|----------------|------------------------|------|
| 2 H=2.216 EG.K) ALI | | 0116 | I (DIST | ANCES (MM |) U(M/S | P (MMH | G) T(DE | G.K) AL | 9 CF=0.0 PA (DEG.)) | 0071 |
| | PRESSUR | | | | LAYER PE | OFILES | 11 | SUBPAC | E PRESSUC | ES |
| I/C UPPER SI | CP | HL I | 2 | PT/PO | CPB | U/UR | MB 11 | X/C UPPER S | CP | ML |
| 1 0.0 | 1. 1324 | 0.114 | 0.0 | 0.7033 | 0.1317 | 0.0 | 0.0 11 | | 1. 1268 | 0.12 |
| 1 0.0040 | 0.5116 | 0.553 | 0.070 | 0.7147 | 0.1314 | 0.2204 | 0. 15211 | | 0.5049 | 0.55 |
| 1 0.0080 | -0.1485 | 0.851 | 0.115 | 0.7139 | 0.1312 | 0.2129 | 0.14711 | 0.0080 | -0.1540 | 0.85 |
| 1 0.0150 | 0.1976 | 0.698 1 | 1 0.160 | 0.7159 | 0.1311 | 0.2318 | 0.16011 | | 0.1913 | 0.70 |
| 1 0.0250 | -0.3788 | 0.954 | 1 0.238 | 0.7179 | 0.1308 | 0.2498 | | 0.0250 | -0.3834 | 0.95 |
| | -0.5140 -0.7094 | 1.017 | 1 0.301 | 0.7195 | 0.1305 | 0.2640 | | 0.0400 | -0.5165 | 1.01 |
| 1 0.0600 | -0.8407 | 1. 179 | 1 0.454 | 0.7219 | 0.1299 | 0.2831 | 0.19611 | 0.0600 | -0.7125 -0.8437 | 1.11 |
| 0.1000 | -0.9077 | 1.214 | 1 0.846 | 0.7259 | 0.1292 | 0.3140 | | 0.1000 | -0.9082 | 1.21 |
| 0.1400 | -0.9461 | 1.235 1 | 1 1.219 | 0.7347 | 0.1284 | 0.3668 | | 0.1400 | -0.9437 | 1.23 |
| 1 0. 1800 | -0.9845 | 1.256 | 1 1.581 | 0.7407 | 0.1304 | 0.3949 | | 0.1800 | -0.9792 | 1.25 |
| 1 0.2200 | -1-0243 | 1.279 | 1 1.943 | 0.7451 | 0.1351 | 0.4100 | 0.28511 | 0.2200 | -1.0180 | 1.27 |
| 0.2600 | -1.0038 | 1.267 1 | 1 2.346 | 0.7524 | 0. 1366 | 0-4413 | | 0.2600 | -1.0002 | 1.26 |
| 1 0.3000 | -1.0155 | 1.274 1 | 1 2.771 | 0.7642 | 0.1316 | 0.4968 | | 0. 3000 | -1.0132 | 1.27 |
| 0.3400 | -1.0181 -1.0251 | 1.276 | 1 3.085 | 0.7759 | 0. 1255 | 0.5464 | | 0.3400 | -1.0184 | 1.27 |
| 0.4200 | -1.0147 | 1.274 | 1 3.462 | 0.7936 | 0.1223 | 0.6065 | | 0.3800 | -1.0232 -1.0119 | 1.27 |
| 0.4600 | -1-0275 | 1.281 | 1 4.189 | 0.8238 | 0.1267 | 0.6861 | | 0.4600 | -1.0222 | 1.27 |
| 0.5000 | -1.0339 | 1.285 | 4.577 | 0.8452 | 0.1278 | 0.7367 | | 0.5000 | -1.0246 | 1.28 |
| 1 0.5400 | -0.6161 | 1.066 1 | 1 4.939 | 0.8668 | 0.1247 | 0.7861 | | 0.5400 | -0.5902 | 1.05 |
| 1 0.5800 | -0.4024 | 0.965 1 | 1 5.324 | 0.8878 | 0.1231 | 0.8290 | 0.59111 | 0.5800 | -0.4045 | 0.96 |
| 0.6200 | -0.3232 | 0.929 1 | 1 5.708 | 0.9096 | 0.1233 | 0.8689 | 0.62211 | | -0.3247 | 0.93 |
| 1 0.6600 | -0.2717 | 0.906 | 1 6.051 | 0.9271 | 0.1232 | 0.8989 | | 0.6600 | -0.2723 | 0.90 |
| 1 0.7000 | -0.2177 -0.1338 | 0.882 | 1 6.447 | 0.9524 | 0.1233 | 0.9394 | | 0.7000 | -0.2206 | 0.88 |
| 1 0.8000 | -0.0410 | 0.803 1 | 1 6.820 | 0.9695 | 0.1231 | 0.9651 | | 0.7500 | -0.1377 -0.0394 | 0.84 |
| 1 0.8500 | 0.0481 | 0.764 1 | 1 7.559 | 0.9869 | 0.1249 | 0.9891 | | 0.8500 | 0.0524 | 0.76 |
| 1 0.9000 | 0.1285 | 0.728 1 | 1 7.939 | 0.9927 | 0.1261 | 0.9965 | 0.72211 | | 0.1317 | 0.72 |
| 1 0-9500 | 0.1941 | 0.699 1 | 1 8.671 | 0.9957 | 0.1295 | 0.9986 | | 0.9500 | 0.1940 | 0.70 |
| 1 0.9750 | 0-2209 | 0.687 | 1 4.406 | 0.9962 | 0.1303 | 0.9989 | | 0.9750 | 0.2184 | 0.68 |
| 1 1.0000 | 0.2434 | 0-677 | 110.212 | 0.9960 | 0.1296 | 0.9989 | | 1.0000 | 0.2386 | 0.68 |
| 1 1.0000 | 0.2434 | 0.677 | 111.305 | 0.9936 | 0.1319 | 0.9944 | | LOWERS | | |
| 0.9500 | 0.4124 | 0.600 1 | 112.186 | 0.9893 | 0.1301 | 0.9895 | | 1.0000 | 0.2386 | 0.68 |
| 1 0.9000 | 0.4554 | 0.580 1 | 113.145 | 0.9836 | 0.1249 | 0.9843 | | 0.9500 | 0.4121 | 0.60 |
| 0.8500 | 0.4512 | 0.582 | 116.999 | 0.9794 | 0.1179 | 0.9825 | | 0.8500 | 0.4501 | 0.58 |
| 0.8000 | 0-4241 | 0.594 1 | 118.928 | 0.9801 | 0.1159 | 0.9847 | | 0.8000 | 0.4241 | 0.59 |
| 1 0.7500 | 0.3751 | 0.617 1 | 120.674 | 0.9808 | 0.1163 | 0.9854 | | 0.7500 | 0.3748 | 0.61 |
| 1 0.6500 | 0.2550 | 0.672 1 | 122.824 | 0.9811 | 0.1150 | 0.9866 | | 0.6500 | 0.2594 | 0.67 |
| 1 0.5500 | 0.1168 | 0.734 1 | 124.689 | 0.9823 | 0.1133 | 0.9892 | | 0.5500 | 0.1222 | 0.73 |
| 1 0.4500 | -0.0220 | 0.795 | 126.342 | 0.9830 | 0.1119 | 0.9909 | | 0.4500 | -0.0205 | 0.79 |
| 1 0.3500 | -0.0932 | 0.836 1 | 129.958 | 0.9842 | 0.1078 | 0.9949 | | 0.3500 | -0.1112 | 0.83 |
| 1 0.2000 | -0.0192 | 0.794 | 137.451 | 0.9867 | 0.1002 | 1.0027 | | 0.2000 | -0.0132 | 0.79 |
| 0.1500 | 0.0695 | 0.755 1 | 1 | | | | | 0.1500 | 0.0803 | 0.75 |
| 1 0.1000 | 0.1882 | 0.702 | i | | | | | 0.1000 | 0.1992 | 0.69 |
| 1 0.0500 | 0.2931 | 0.655 1 | i | | | | | 0.0500 | 0.2992 | 0.65 |
| 1 0.0200 | 0.3831 | 0.614 1 | 1 | | | | 11 | 0.0200 | 0.3836 | 0.61 |
| 1 0.0080 | 0.4664 | 0.574 1 | 1 | | | | | 0.0080 | 0.4649 | 0.57 |
| 1 0.0040 | 0.7103 | 0.451 | 1 | | | | | 0.0040 | | 0.45 |
| 1 0.0 | 1.1324 | 0.114 1 | 1 | | | | 11 | 0.0 | 1.1268 | 0.12 |

| DEL= 10. | 910 DEL | *= 4.781 | 5 THETA | = 1.6905 | u=2 81 | 4 CF=0.0 | 0027 |
|----------|-----------|----------|---------|----------|--------|------------|--------|
| | ANCES (MM | | | G) T (DE | | PA (DEG.)) | 0037 |
| | CUNDARY | | | | | E PRESSUR | |
| | | | | 11 | | | |
| Z | PT/PO | CPB | 0/08 . | MB !! | | CP | HL |
| 0.0 | 0.7324 | | 0.0 | 0.0 11 | 0.0 | 1. 1327 | 0.113 |
| 0.070 | 0.7363 | 0.2314 | 0.1370 | | 0.0040 | 0.5129 | 0.552 |
| 0.148 | 0.7368 | 0.2305 | 0.1485 | | 0.0080 | -0.1482 | 0.851 |
| 0.227 | 0.7375 | | 0.1610 | | | 0.1936 | 0.699 |
| 0.313 | 0.7376 | 0.2285 | 0.1684 | 0.11011 | | -0.3812 | 0.955 |
| 0.432 | 0.7380 | 0.2271 | 0.1784 | 0.11711 | | -0.5147 | 1.017 |
| 0.999 | 0.7392 | 0.2224 | 0.1916 | 0.12611 | | -0.7104 | 1.112 |
| 1.369 | 0.7416 | 0.2210 | 0.2366 | 0. 15511 | | -0.8418 | 1.179 |
| 1.753 | 0.7431 | 0.2209 | 0.2512 | 0. 16511 | | -0.9458 | 1.235 |
| 2.189 | 0.7466 | 0.2221 | 0.2772 | 0. 18211 | | -0.9831 | 1.255 |
| 2-518 | 0.7487 | 0.2207 | 0.2965 | 0.19511 | | -1-0242 | 1.279 |
| 3.085 | 0.7560 | 0.2202 | 0.3472 | 0. 22911 | | -1.0049 | 1.268 |
| 3.633 | 0.7641 | 0 2186 | 0.3970 | 0.26211 | | -1.0165 | 1. 274 |
| 4.219 | 0.7755 | 0.2184 | 0.4545 | 0. 30011 | | -1.0185 | 1.275 |
| 4.943 | 0.7930 | 0.2172 | 0.5301 | 0.35111 | 0.3800 | -1.0228 | 1.278 |
| 5.708 | 0.8152 | 0.2157 | 0.6102 | 0.40614 | | -1.0142 | 1.273 |
| 6.466 | 0.8413 | 0.2158 | 0.6879 | 0.46011 | | -1.0270 | 1.280 |
| 7.174 | 0.8684 | 0.2155 | 0.7579 | 0.50911 | 0.5000 | -1.0316 | 1.283 |
| 7.947 | 0.8989 | 0-2148 | 0.8271 | 0.55811 | 0.5400 | -0.6489 | 1.081 |
| 8.686 | 0.9303 | 0.2121 | 0.8915 | 0.60511 | 0.5800 | -0.4034 | 0.965 |
| 9-428 | 0.9638 | 0.2129 | 0.9501 | 0.64811 | | -0.3265 | 0.930 |
| 0.193 | 0.9815 | 0.2147 | 0.9780 | 0.66911 | | -0.2743 | 0.907 |
| 0-910 | 0.9903 | 0.2167 | 0.9905 | 0.67811 | | -0.2206 | 0.883 |
| 1.648 | 0.9943 | 0.2159 | 0.9972 | 0.68311 | | -0.1381 | 0.846 |
| 2.413 | 0.9953 | 0.2157 | 0.9989 | 0.68411 | | -0.0397 | 0.803 |
| 3.167 | 0.9950 | 0.2131 | 1.0000 | 0.68511 | | 0.0526 | 0.762 |
| 3. 917 | 0.9920 | 0.2120 | 0.9960 | 0.68211 | | 0.1303 | 0.728 |
| 5. 395 | 0.9882 | 0.2132 | 0.9895 | 0.67711 | | 0.1933 | 0.700 |
| 6. 126 | 0.9843 | 0.2108 | 0.9848 | 0.67411 | 1.0000 | 0.2187 | 0.688 |
| 6.917 | 0.9833 | 0.2110 | 0.9831 | 0.67211 | | | 0.070 |
| 7.660 | 0.9828 | 0.2113 | 0.9821 | 0.67211 | 1.0000 | 0.2412 | 0.678 |
| 8.760 | 0.9822 | 0.2098 | 0.9821 | 0.67211 | | 0.4112 | 0.600 |
| 0.910 | 0.9822 | 0.2055 | 0. 9847 | 0.67411 | | 0.4540 | 0.580 |
| 2.544 | 0.9826 | 0.2028 | 0.9870 | 0.67511 | | 0.4496 | 0.582 |
| 4.387 | 0.9829 | 0.1989 | 0.9898 | 0.67711 | | 0.4249 | 0.594 |
| 6.469 | 0.9835 | 0.1943 | 0.9937 | 0.68011 | | 0.3753 | 0.617 |
| 8.346 | 0.9840 | 0.1915 | 0.9962 | 0.68211 | 0.6500 | 0.2557 | 0.672 |
| 0. 189 | 0.9851 | 0.1889 | 0.9995 | 0.68511 | | 0.1156 | 0.734 |
| 2.163 | 0.9852 | 0.1855 | 1.0017 | 0.68611 | | -0.0218 | 0.795 |
| 3.812 | 0.9861 | 0.1828 | 1.0047 | 0.68811 | | -0.1105 | 0.834 |
| 6.051 | 0.9867 | 0.1784 | 1.0082 | 0.69111 | | -0.0894 | 0.825 |
| 7.488 | 0.9878 | 0.1760 | 1.0113 | 0.69311 | | -0.0192 | 0.794 |
| 7.980 | 0.9880 | 0.1758 | 1.0119 | 0.69411 | | 0.0698 | 0.754 |
| | | | | !! | | 0.1875 | 0.702 |
| | | | | !! | 0.0500 | 0.2950 | 0.654 |
| | | | | !! | 0.0200 | 0.3818 | 0.614 |
| | | | | !! | | 0.4640 | 0.575 |
| | | | | 11 | 0.0 | 1. 1327 | 0.452 |



Geometric data: Chord c = 200 mm Maximum t/c = 11.8% at x/c = 35% Cross section $F_p \approx 3063 mm^2$ Trailing edge thickness z_{TE}/c = 0.38% Diameter of pressure orifices $d_B = 0.5$ mm

a. Contour and location of pressure orifices



b. Measured error of manufactured airfoil (also see Table 3.1a)

Figure 3.1 Airfoil CAST 7 - Model SP 120 (c = 200 mm): Contour, location of pressure orifices and deviation from design coordinates (see Table 3.1b for deviation on ARA model)

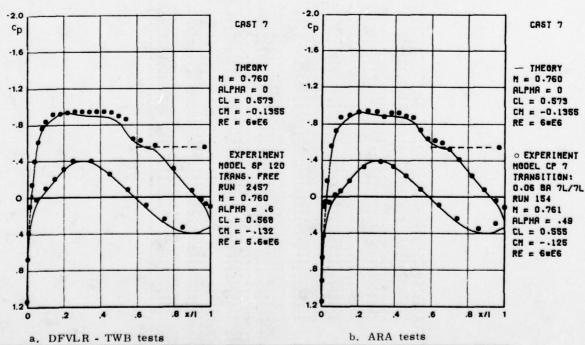
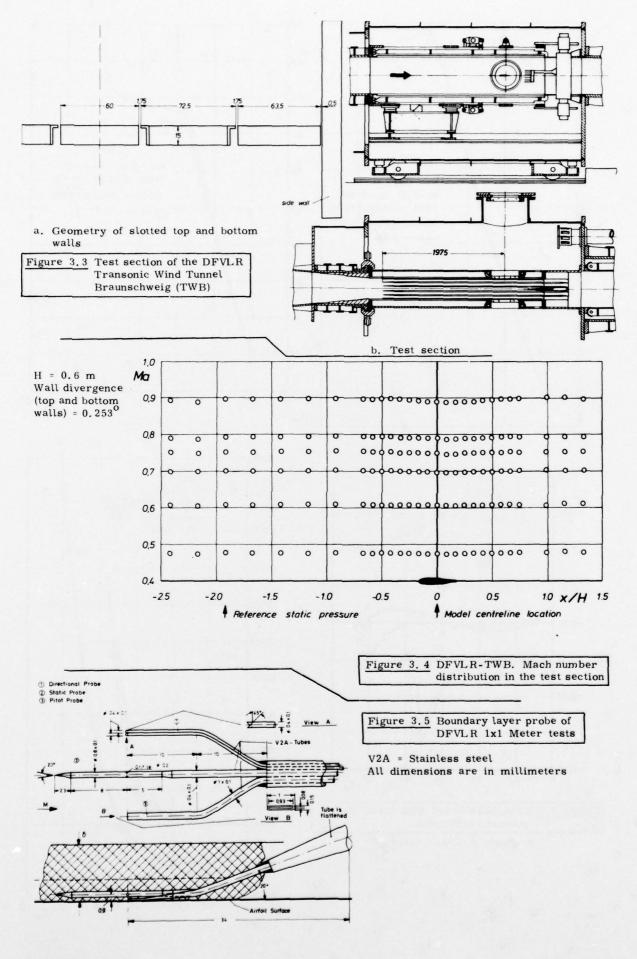
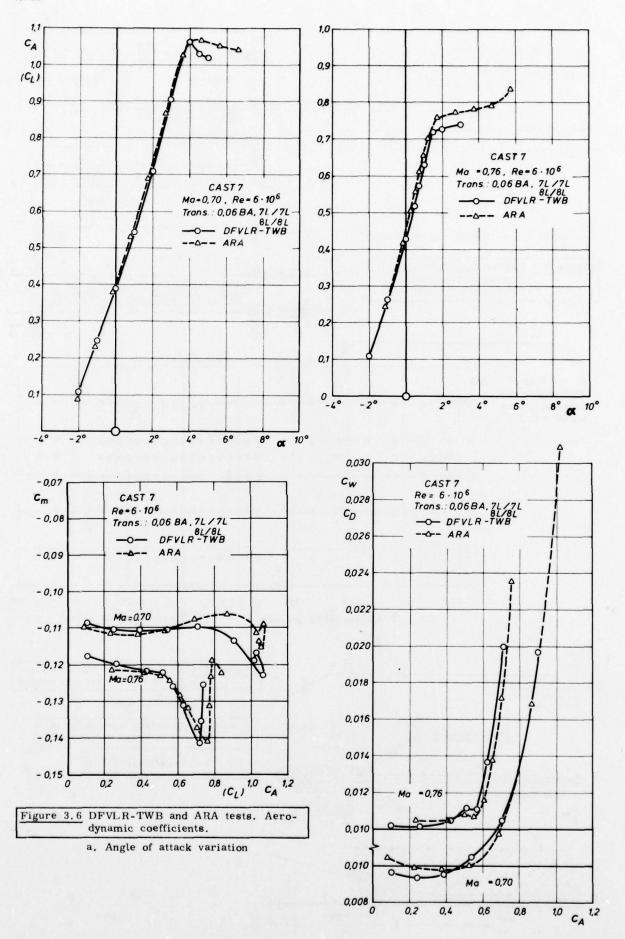
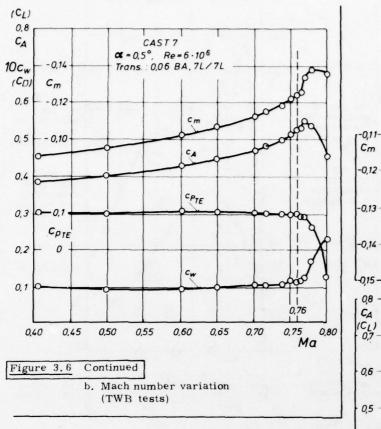
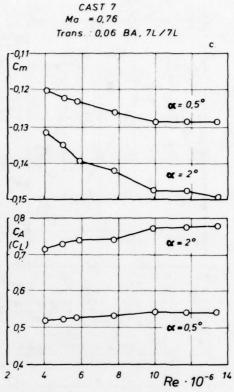


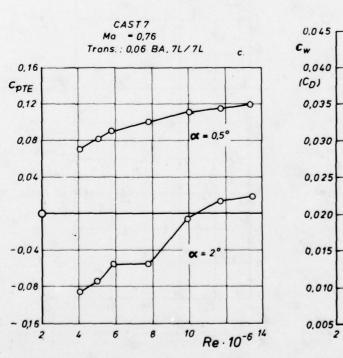
Figure 3.2 Design pressure distribution. Comparison between theory and experiment.

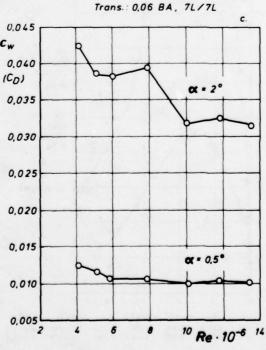








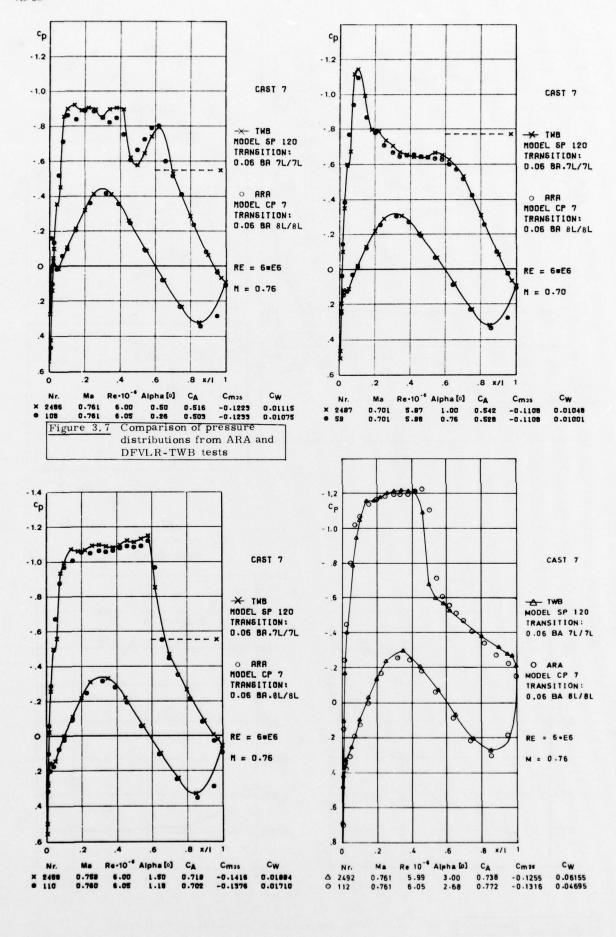


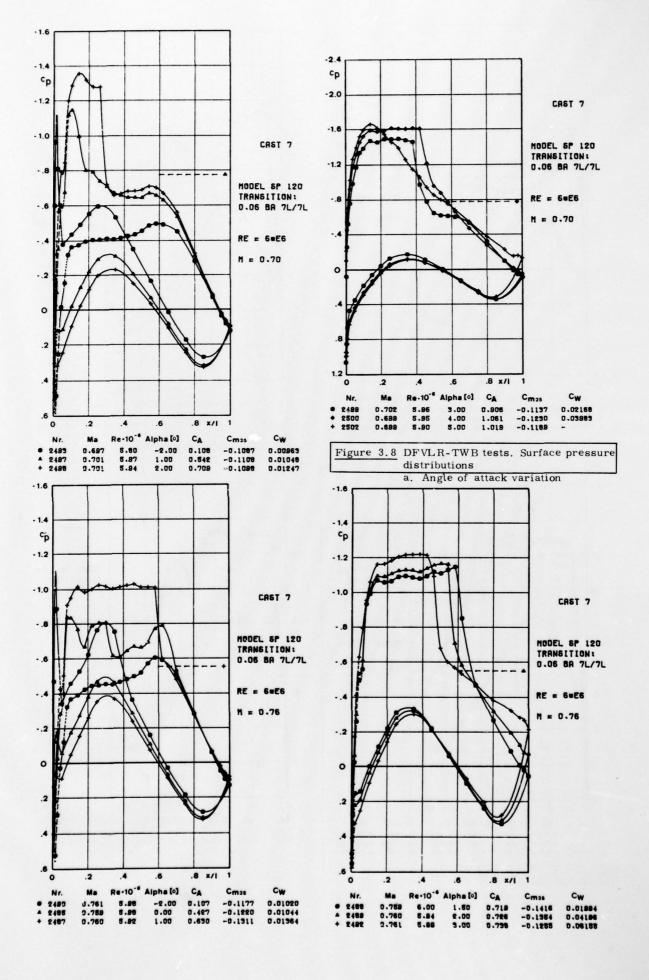


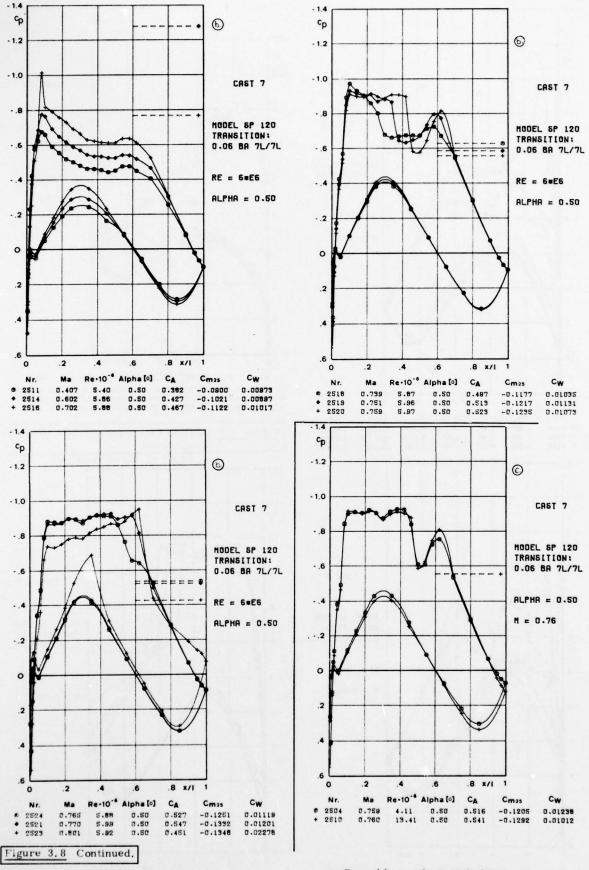
CAST 7 Ma = 0,76

Figure 3.6 Concluded

c. Reynolds number variation (TWB tests)







b. Mach number variation

c. Reynolds number variation

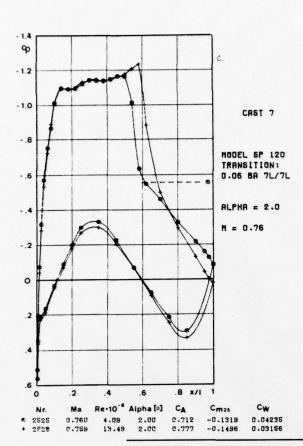
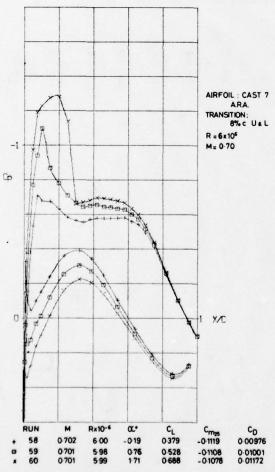


Figure 3.8 Concluded

c. Reynolds number variation



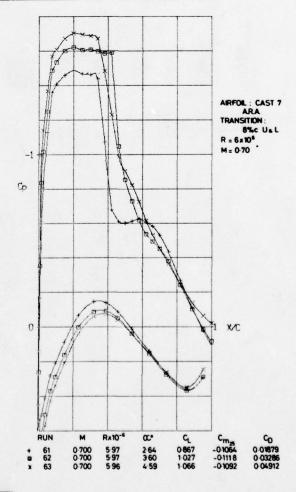


Figure 3.9 ARA tests. Surface pressure distributions

a. Angle of attack variation

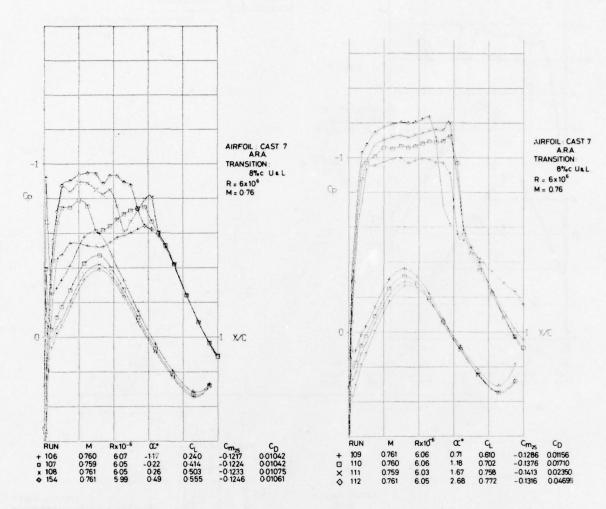
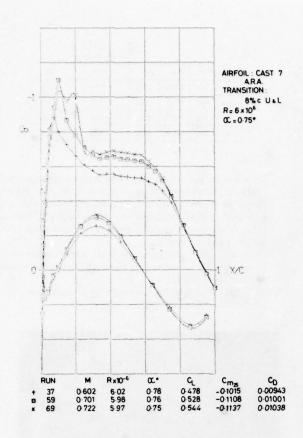


Figure 3.9 Continued

a. Angle of attack variation



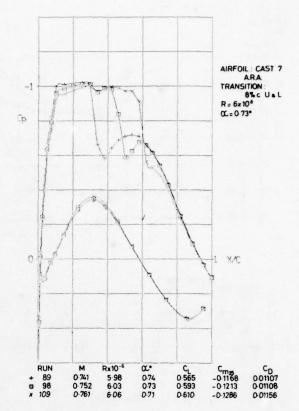
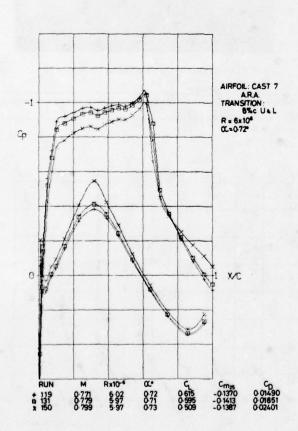
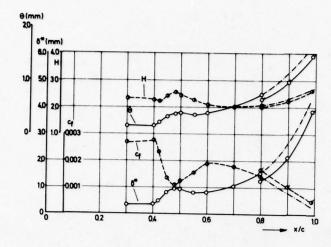
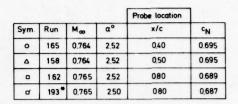


Figure 3.9 Concluded
b. Mach number variation



And the second of the second o

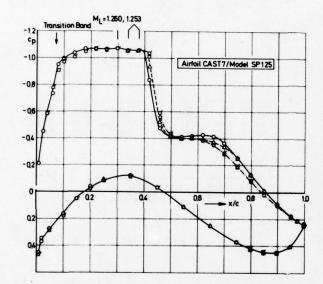


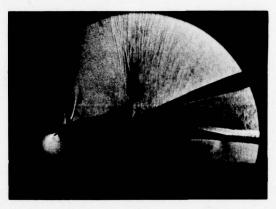


Transition band was renewed before measuring boundary layer profiles at x/c ≥ 0.80. Boundary layer profile at x/c = 0.80 was obtained with old and new transition band for comparison. The flagged symbols denote measurements with transition band renewed.

Data are not corrected for wall constraints or blockage due to cover of probe drive mechanism (see Introduction).

Skin friction was determined by a modified Ludwieg-Tillmann Formulation [6]

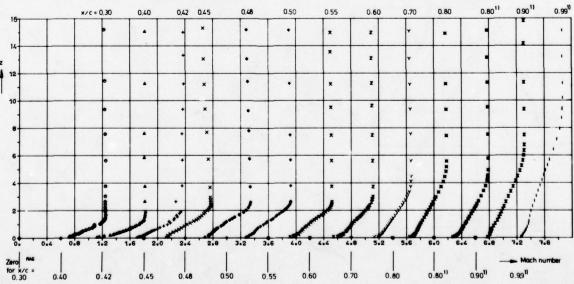




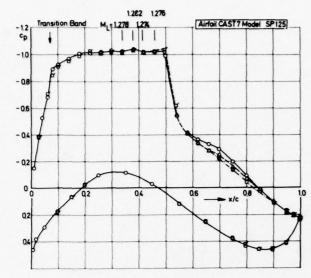
Schlieren picture corresponds to Run 158 with $(x/c)_{probe} = 0.50$

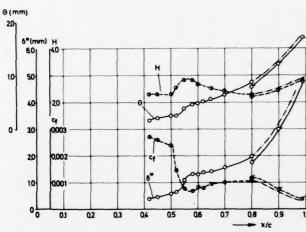
Figure 3.10 DFVLR 1x1 Meter tests. Surface pressure distribution and boundary layer measurements Model: SP 125 c = 250 mm. Transition: 0.09 BA, 7.5/7.5L a. M_{∞} = 0.765 α = 2.52 Re = 2.4 · 10⁶

Sym o A + x + 4 x z y K + X I I Run 166 165 164 163 157 156 159 160 161 162 193 194 195



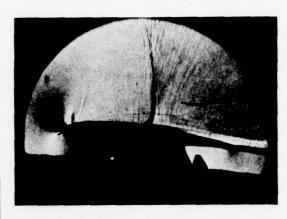
1) Transition band renewed (also see Legend)





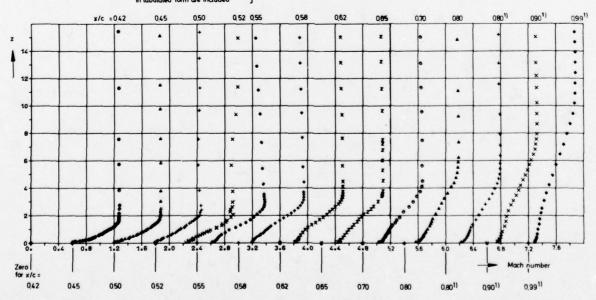
| | Probe location | | | | |
|------|----------------|------|----------------|------|-----|
| CN | x/c | a° | M _∞ | Run | Sym |
| 0.72 | 0,42 | 2,52 | 0.785 | 177 | 0 |
| 0.71 | 0.60 | 2,52 | 0.785 | 171 | Δ |
| 0.70 | 0,80 | 2.52 | 0.784 | 167 | 0 |
| 0.70 | 0.80 | 250 | 0.785 | 197* | ۵ |

For comments see Legend of Figure 3.10a



Schlieren picture corresponds to Run 168 with $(x/c)_{probe} = 0.70$

| Figure | | Concluded | |
|--------|------|----------------------|-------------------------|
| | b. M | $I_{\infty} = 0.785$ | $\alpha = 2.52^{\circ}$ |
| | R | e = 2.4 · | 10 ⁶ |



1) Transition band renewed (also see Legend to Figure 3.10a)

4. NLR 7301 airfoil

contributed by

National Aerospace Laboratory NLR Amsterdam, The Netherlands

4.1 Introduction

The NLR 7301 airfoil was selected because it represents the thickest (16.5%) of all supercritical airfoils submitted for inclusion in this data base and appears to be close to the limits of useful exploitation of the supercritical shock-free airfoil concept.

Because of the rather extreme nose radius the airfoil represents probably a hard test case for cartesian grid based methods, in particular if also based on the transonic small perturbation assumption.

The fact that the airfoil represents a rather extreme specimen of thick, supercritical airfoils is, in the present low Reynolds number tests ($\approx 2 \times 10^6$), reflected, i.a., in the typical variations with angle of attack and Mach number of the aerodynamic coefficients. It appears that, even at subcritical conditions, and both with free and fixed transition, the boundary layer on either the upper surface, or the lower, or both, is stressed to the limits or beyond. As a result the effects of variations in transition position and transition fixing are rather dramatic. This situation suggests that the airfoil would be a difficult test case for all methods involving coupled inviscid flow and boundary layer computations. Note that when transition was free, it occurred generally through a laminar separation bubble which is often reflected in the pressure distribution (see e.g. fig. 4.10, α = .85°, M = 0.5 - 0.7, lower surface 50% chord). With fixed transition at 30% chord the trip caused generally a local perturbation of the pressure distribut-

A point of concern (although not a privilege of the present tests) is the amount of wall interference contained by the test data. The wall interference corrections given in section 6.2 of the data set have been determined by correlating classical ventilated wall interference theory with the downwash determined experimentally by means of solid/slotted wall comparisons and by means of the "drag balance" method (difference between wake drag and pressure + friction drag). At the time of the preparation of this data set, work was in progress to determine wall interference from measured static pressure distributions near the top and bottom wall. The reader is encouraged to watch the literature for publication of this work. It is emphasized that the observed difference between potential flow and experimental design Mach number for shock-free flow for this airfoil of 0.026 (fig. 4.1) is not a measure of the blockage in the tests. The difference can be explained by the viscous de-cambering near the trailing-edge. The decambering causes a reduction in circulation and an associated loss in upper surface supervelocity. To restore the local (shock-free) Mach number distribution the angle of attack and free stream Mach number have to be increased above the potential flow values.

It is worth mentioning that the tests were done with the specific purpose of verifying for the first time the aerodynamic characteristics of a supercritical shock-free airfoil designed by means of the Boerstoel hodograph method. The airfoil has also been tested under oscillatory conditions in the same tunnel. At the time of preparation of this data set a program of high Reynolds number tests in the Lockheed Georgia Compressible Flow Facility was partially completed and tests in the NASA Ames 11 ft x 11 ft tunnel (steady and unsteady, Re \approx 15 x 10⁶) were about to be started.

4.2 DATA SET.

1. Airfoil

1.1. Airfoil designation 1.2. Type of airfoil

> 1.2.1. airfoil geometry nose radius maximum thickness

base thickness

1.2.2. design condition

design pressure distribution

1.3. Additional remarks

1.4. References on airfoil

2. Model geometry

2.1. Chord length

2.2. Span

2.3. Actual model co-ordinates and accuracy

2.4. Maximum thickness 2.5. Base thickness 2.6. Additional remarks

2.7. References on model

3. Wind tunnel

3.1. Designation 3.2. Type of tunnel

> 3.2.1. stagnation pressure 3.2.2. stagnation temperature 3.2.3. humidity/dew point

3.3. Test section

3.3.1. dimensions

3.3.2. type of walls

3.4. Flow field (empty test section)

3.4.1. reference static pressure

3.4.2. flow angularity

3.4.3. Mach number distribution 3.4.4. pressure gradient 3.4.5. turbulence/noise level

3.4.6. side wall boundary layer

3.5. Additional remarks

3.6. References on wind tunnel

4. Tests

4.1. Type of measurements

4.2. Tunnel/model dimensions

4.2.1. height/chord ratio 4.2.2. width/chord ratio

4.3. Flow conditions included in present data base

NLR 7301 (also NLR HT 7310810) thick, aft-loaded, shock-free supercritical; designed by means of Boerstoel hodograph method

see fig. 4.1 and table 4.1 $R_{o/c} \approx 5\%$ t/c = 16.3%

zero

potential flow (hodograph theory):

M = 0.721 $c_1 = 0.60$

experiment (free transition, NLR Pilot Tunnel):

 $M_t = 0.747$, $c_1 \approx 0.45$ see fig. 4.1, table 4.1

design method described in ref. 1

none

0.18 m 0.42 m

see table 4.2 and fig. 4.2 t/c = 16.%

0.1% chord

finite trailing-edge (base) thickness was obtained by cutting-off theoretical airfoil

at 98.5% chord

none

NLR Pilot tunnel continuous, closed circuit

atmospheric 313 + 1 K

varies with atmospheric condition

(stagnation temperature chosen such that condensation is avoided)

see fig. 4.3

rectangular height0.55 m, width 0.42 m 10% slotted top and bottom walls, solid side walls

separate top and bottom plenums

taken at side wall 3.6 chords upstream of

upwash $\Delta \alpha = 0.12^{\circ} (+ 0.03^{\circ})$ (with respect to tunnel reference plane)

see fig. 4.4a

see fig. 4.4b see fig. 4.5 and ref. 4 thickness 10% of test section semi-width,

no special treatment

for two-dimensionality of the flow see ref. 3

ref. 2

surface pressures (lift, pitching moment) wake pitot pressures (drag) surface flow visualization flow field visualization

4.3.1. angle of attack

4.3.2. Mach number

4.3.3. Reynolds number

4.3.4. transition

- position of free transition

- transition fixing

4.3.5. temperature equilibrium

4.4. Additional remarks

4.5. References on tests

5. Instrumentation

5.1. Surface pressure measurements

5.1.1. pressure holes

- size

- spanwise station(s)

- chordwise positions

5.1.2. type of transducers and scanning devices

5.1.3. other

5.2. Wake measurements

5.2.1. type/size of instrument(s)

5.2.2. streamwise position(s)

5.2.3. type of transducers and scanning devices

5.3. Boundary layer measurements

5.3.1. type/size of instruments

5.3.2. locations

5.3.3. type of transducers and scanning devices

5.4. Skin friction measurements

5.4.1. type/size of instruments

5.4.2. locations

5.4.3. type of transducer

5.5. Flow visualisation

5.5.1. flow field

5.5.2. surface flow

5.6. other

5.7. Additional remarks

5.8. References on instrumentation

Property of the distribution of the party of

 -4° to + 4° for $M_{t} = 0.747$ 0.30 to 0.85 for $a_{t} = 0.85^{\circ}$ about 2 x 10^{6} (see fig. 4.6)

free and fixed

see fig. 4.7

size 130 (90-106 μ) ballotini (glass beads) bands of 2mm width at 30% chord on upper and lower surface

Yes

 without boundary layer trip transition occured generally through a laminar separation bubble.

2) there are indications for incipient rear separation at all flow conditions except at low c₁ and around the design condition with free transition

ref. 5

diameter 0.25 mm; depth lmm staggered (± 20 mm) around centre line see table 4.3 and fig. 4.2a one ± 7.5 psi and two ± 5psi Statham differential pressure transducers + 48 steps

differential pressure transducers + 48 steps Scanivalves; reference pressure per measured with C.E.C. 15 psi absolute pressure transducer

(accuracy + 0.05 %)

no

wake rake (fig. 4.3);
69 tubes, spacing according to table 4.4
tube diameter outer/inner: 1.0/0.7 mm
0.8 chords downstream of trailing edge
two ± 2.5 psi Statham differential pressure
transducers + 48 steps Scanivalves;
reference pressure p , measured with C.E.C.
15 psi absolute pressure transducer (accuracy ± 0.05 %)

no

no

shadowgraph pictures detection of transition position by sublimation technique (acenaphtene)

no

length of pressure tubes 4m; scanning rate 2 pressures/sec.

none

6. Data

6.1. Accuracy (wall interference excluded)

6.1.1. angle of attack setting

6.1.2. free stream Mach number:

- setting

- variation during one pressure scan

6.1.3. pressure coefficients

6.1.4. aerodynamic coefficients 6.1.5. boundary layer quantities

6.1.6. repeatability

6.1.7. remarks

6.2. Wall interference corrections (indicate estimated accuracy)

6.2.1. angle of attack

6.2.2. blockage (solid/wake)

6.2.3. streamline curvature

6.2.4. other

6.2.5. remarks

6.2.6. references on wall interference corrections

6.3. Presentation of data

6.3.1. aerodynamic coefficients

6.3.2. surface pressures

6.3.3. boundary layer quantities 6.3.4. wall interference corrections included?

6.3.5. corrections for model deflection

6.3.6. Empty test section calibration taken into account?

6.3.7. other corrections included?

6.3.8. additional remarks

6.4. Were test carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?

6.5. To be contacted for further information on tests

+ 0.02°

+ 0.001

+ 0.001

 $\overline{\Delta}C_{\mathrm{p}}$ =±0.002 to 0.02 depending on local pressure level and dynamic pressure

unknown

 $\Delta c_{1} \approx \pm 0.004$; $\Delta c_{d} \approx \pm 0.0005$; $\Delta c_{m} \approx \pm 0.001$

none

 $\Delta \alpha = -1.4 \times c_1$ + 0.56 ($c_{\rm m}$ +0.25 $c_{\rm 1}$) $/\sqrt{1-M^2}$ (degrees) | Δq | ≤ 0.5%

 $\Delta c_1 = -0.015 \times c_1 / (1-M^2), (\pm 30\%)$

 $\Delta c_{m} = -0.25 \, \Delta c_{1} \, , \, (\pm 30\%)$

wall interference is presently being reassessed

figs. 4.8, 4.9 , table 4.5 table 4.5; fig. 4.10 (table4.5 includes wake rake pressures)

tabulated data for α , c_1 and c_m are presented with and without corrections for downwash and streamline curvature. No blockage corrections No corrections on cd and Cp. Figures present only uncorrected values

no fixed transition surface pressure data are affected by local disturbances due to transition band (in particular holes number

15, 47 and 48) 1) Tests at various Reynolds numbers (3-30x10⁶) conducted in Lockheed Ga. Compressible Flow Facility. Not included in present

data base 2) Unsteady (oscillating airfoil) tests on other model in same tunnel. Not included

in data base.

3) Unsteady (oscillating airfoil) tests at 15 x 10 Re number planned in 2-d test set-up of NASA Ames 11 x 11 foot Tunnel. Not included in data base

J. Zwaaneveld National Aerospace Laboratory NLR Anthony Fokkerweg 2 Amsterdam 1017 Netherlands

7. References

"Transonic shock-free aerofoil design by 1. J.W. Boerstoel G.H. Huizing analytic hodograph methods" NLR MP 73023 U Also AIAA Paper 74-539 2. J. Zwaaneveld Principal Data of the NLL Pilot Tunnel Report MP. 185 Investigation of the 2-dimensionality of 3. H.A. Dambrink the flow around a profile in the NLR 0.55 x 0.42 m² transonic wind tunnel NLR Memorandum AC-72-018 Noise environment in the NLR transonic wind 4. R. Ross P. Rohne tunnel HST NLR TR 74128 U 5. J. Zwaaneveld Aerodynamic characteristics of the supercritical shock-free airfoil section NLR 7301 Values of wall interference corrections 6. J. Smith for the NLR Pilot Tunnel with 10% open test section NLR Memorandum AC-74-01 8. List of Symbols

8.1. used in text and figures

C_p pressure coefficient C' critical pressure coefficient airfoil chord length C cd drag coefficient c1 lift coefficient pitching moment coefficient (with respect to .25c) cm M free stream Mach number free stream static pressure p_{∞} free stream stagnation pressure po dynamic pressure Rec Reynolds number Ro leading edge radius t airfoil maximum thickness airfoil coordinate system x,z windtunnel coordinate system xt, zt angle of attack subscript refers to uncorrected values

8.2. used in data tables

ALPHA ALPHAT a_t (with respect to tunnel reference plane) pressure drag coefficient, uncorrected pressure drag coefficient, corrected for wall interference CDP CLB \mathbf{c}_1 , corrected for wall interference CL c_{m_t} CMB c , corrected for wall interference C (uncorrected) CM CPIB CPWB total head deficit pressure coefficient in wake MAB free stream Mach number, uncorrected PI local static pressure (kgf/m2) PO stagnation pressure (kgf/m2) free stream dynamic pressure (kgf/m2) QB REC 1/R curvature THETA surface slope

```
MACH INF = 0.720957
INCIDENCE=-0.358948 DEGR
```

CL = 0.594936 CN = 0.594924 C1 = 0.003728

CP(MACH=0) = 1.136786 CP(MACH=1) =-0.695936

UPPER PART OF AEROFOIL

LOWER PART OF AEROFOIL

| x | z | THETA | 1.40 | | | × | | | | | |
|---------|----------|----------|-------------|--------|--------|----------|----------|----------------------|--------------|---------|--------|
| | -0.00041 | 89.7175 | 1/8 | | CP | 0.00090 | -0 01007 | THETA | 1/8 | M | CP |
| 0.00000 | 0.01105 | 78.9392 | 1.841 • •1 | 0.0002 | 1.137 | 0.00380 | -0.01007 | -78.1070 -63.2287 | -2.815 +1 | 0.5008 | 1.029 |
| 0.00422 | 0.02171 | 68.9825 | 1.634 • 1 | U.3432 | 0.744 | 0.00973 | -0.01817 | | -2.379 +1 | 0.3932 | 0.744 |
| 0.00943 | 0.03217 | 57.7134 | 1.817. +1 | 0.6135 | 0.265 | | -0.02674 | -47.4469 | -2.3861 +1 | 0.6135 | 0.265 |
| 0.01519 | 0.03976 | 47.4163 | 2.1241 | U.8257 | | 0.01514 | -0.03170 | -37.8363 | -1.911 • 1 | 0.7245 | -0.009 |
| 0.02005 | 0.04434 | 39.0787 | | | -0.265 | 0.02032 | -0.03528 | -31.8854 | -1.487 • 1 | 0.7861 | -0.164 |
| | | | 2.5351 +1 | 1.0120 | -0.725 | 0.03173 | -0.04119 | -23.7468 | -7.879 +0 | 0.8452 | -0.314 |
| 0.02722 | 0.04909 | 27.9208 | 2.199 • •1 | 1.2221 | -1.192 | 0.03871 | -0.04403 | -20.7632 | -6.086 * +0 | 0.8644 | -0.362 |
| 0.03279 | 0.05173 | 23.5938 | 8.307 +0 | 1.2738 | -1.296 | 0.05012 | -0.04794 | -17.1851 | -4.338 +0 | 0.8834 | -0.410 |
| 0.06994 | 0.06306 | 12.1222 | 2.751 +0 | 1.2738 | -1.296 | 0.07183 | -0.05373 | -13.0435 | -2.390 • •0 | 0.8929 | -0.433 |
| 0.08380 | 0.06584 | 10.3503 | 1.778 • • 0 | 1.2652 | -1.279 | 0.0876A | -0.05710 | -11.1493 | -1.751 • • 0 | 0.8959 | -0.441 |
| 0.09548 | 0.06778 | 9.2952 | 1.3860 | 1.2566 | -1.262 | 0.10248 | -0.05982 | -9.7987 | -1.406 * +0 | 0.8991 | -0.449 |
| 0.10759 | 0.06963 | 8.4118 | 1.1380 | 1.2479 | -1.244 | 0.11696 | -0.06217 | -8.7150 | -1.186 * +0 | 0.9022 | -0.457 |
| 0.12087 | 0.07153 | 7.6114 | 9.641 -1 | 1.2393 | -1.227 | 0.13181 | -0.06430 | -7.7675 | -1.028. +0 | 0.9053 | -0.464 |
| 0.13533 | 0.07334 | 6.8614 | 8.341 -1 | 1.2307 | -1.210 | 0.14697 | -0.06626 | -6.9198 | -9.1161 | 0.9084 | -0.472 |
| 0.15107 | 0.07521 | 6.1473 | 7.3371 -1 | 1.2221 | -1.192 | 0.16344 | -0.06814 | -6.1020 | -8.174 -1 | 0.9115 | -0.480 |
| 0.16857 | 0.07699 | 5.4501 | 6.5361 -1 | 1.2135 | -1.174 | 0.18139 | -0.06997 | -5.2977 | -7.407 -1 | 0.9146 | -0.488 |
| 0.18765 | 0.07872 | 4.7075 | 5.888 -1 | 1.2048 | -1.156 | 0.20175 | -0.07172 | -4.4710 | -6.7631 -1 | 0.9177 | -0.495 |
| 0.20879 | 0.08033 | 4.0470 | 5.3521 | 1.1962 | -1.138 | 0.22541 | -0.07338 | -3.5402 | -6.2251 -1 | 0.9208 | -0.503 |
| 0.23193 | 11580.0 | 3.4060 | 4.910 -1 | 1.1875 | -1.120 | 0.25401 | -0.07492 | -2.6068 | -5.7921 -1 | 0.9239 | -0.511 |
| 0.25751 | 0.08337 | 2.7129 | 4.5421 -1 | 1.1789 | -1.102 | 0.29056 | -0.07620 | -1.4290 | -5.503 -1 | 0.9270 | -0.518 |
| 0.28580 | 0.08456 | 2.0029 | 4.2431 -1 | 1.1702 | -1.083 | 0.34063 | -0.07674 | 0.1428 | -5.534 -1 | 0.9301 | -0.526 |
| 0.31682 | 0.08535 | 1.2693 | 4.0141 -1 | 1.1616 | -1.065 | 0.45235 | -0.07265 | 4.4299 | -9.2931 -1 | 0.9301 | -0.526 |
| 0.35092 | 0.08578 | 0.5038 | 3.861 -1 | 1.1529 | -1.046 | 0.46726 | -0.07139 | 5.2831 | -1.057 +0 | 0.9239 | -0.511 |
| 0.38690 | 0.08585 | -0.2843 | 3.798 -1 | 1.1442 | -1.027 | 0.47815 | -0.07032 | 5.9586 | -1.084 * +0 | 0.9146 | -0.488 |
| 0.42357 | 0.08551 | -1.0827 | 3.838 -1 | 1.1355 | -1.008 | 0.48580 | -0.06950 | 6.4272 | -1.029 * +0 | 0.9053 | -0.464 |
| 0.45830 | 0.08454 | -1.8614 | 3.988 -1 | 1.1268 | -0.989 | 0.49891 | -0.06793 | 7.1442 | -8.612 -1 | 0.8865 | -0.418 |
| 0.48889 | 0.08334 | -2.5809 | 4.237 -1 | 1.1180 | -0.969 | 0.50546 | -0.06709 | 7.4549 | -7.864 -1 | 0.8771 | -0.394 |
| 0.51467 | 0.08203 | -3.2298 | 4.562 -1 | 1.1093 | -0.950 | 0.51936 | -0.06521 | 8.0380 | -6.740 -1 | 0.8580 | -0.346 |
| 0.53577 | 0.08074 | -3.8041 | 4.9391 -1 | 1.1005 | -0.930 | 0.52692 | -0.06411 | 8.3230 | -6.347 -1 | 0.8484 | -0.322 |
| 0.55314 | 0.07951 | -4.3156 | 5.3471 -1 | 1.0918 | -0.910 | 0.53485 | -0.06293 | 8.6082 | -6.048 -1 | 0.8387 | -0.297 |
| 0.56758 | 0.07836 | -4.7737 | 5.7441 -1 | 1.0830 | -0.890 | 0.54321 | -0.06164 | 8.8955 | -5.8261 -1 | 0.8290 | -0.273 |
| 0.57984 | 0.07712 | -5.1415 | 6.1141 -1 | 1.0742 | -0.870 | 0.54606 | -0.06119 | 8,9913 | -5.767 -1 | U.8257 | -0.265 |
| 0.54049 | 0.07628 | -5.5757 | 6.457 -1 | 1.0653 | -0.850 | 0.56393 | -0.05H27 | 9.5760 | -5.540 -1 | 0.8061 | -0.215 |
| 0.59984 | 0.07534 | -5.9334 | 6.745 -1 | 1.0565 | -0.829 | 0.58260 | -0.05502 | 10.1729 | -5.4561 -1 | U. 7861 | -0.164 |
| 0.60838 | 0.07443 | -6.2704 | 6.968 -1 | 1.0476 | -0.809 | 0.60129 | -0.05158 | 10.7615 | -5.3531 -1 | 0.7659 | -0.113 |
| 0.61624 | 0.07355 | -6.5898 | 7.1191 | 1.0388 | -0.788 | 0.61930 | -0.04806 | 11.3087 | -4.973 -1 | 0.7454 | -0.061 |
| 0.62365 | 0.07267 | -6.8961 | 7.201 -1 | 1.0299 | -0.767 | 0.03656 | -0.04454 | 11.7694 | -4.062 -1 | 0.7245 | -0.009 |
| 0.63073 | 0.07179 | -7.1910 | 7.2161 -1 | 1.0209 | -0.746 | 0.65366 | -0.04090 | 12.1112 | -2.719 -1 | 0.7032 | 0.045 |
| 0.63758 | 0.07091 | -7.4761 | 7.176 -1 | 1.0120 | -0.725 | 0.67152 | -0.03702 | 12.3224 | -1.3561 -1 | 0.6815 | 0.099 |
| 0.04433 | 0.07000 | -7.7545 | 7.091 -1 | 1.0030 | -0.703 | 0.69073 | -0.03283 | 12.4071 | -1.826 -2 | 0.6594 | 0.153 |
| 0.65097 | 0.06908 | -8.0250 | 6.970 -1 | 0.9940 | -0.682 | 0.71144 | -0.02826 | 12.3602 | +9.5881 -2 | 0.6367 | 0.209 |
| 0.65755 | 9.00812 | -8.2710 | 6.8211 -1 | 0.4850 | -0.660 | 0.73347 | -0.02348 | 12.1462 | +2.4421 -1 | 0.6135 | 0.265 |
| 0.66433 | 0.06714 | -8.5519 | 6.666 -1 | U.9759 | -0.638 | 0.75693 | -0.01851 | 11.6662 | +4.631 -1 | U.5896 | 0.322 |
| 0.69172 | 0.06276 | -9.5550 | 5.9581 -1 | 0.9393 | -0.549 | 0.78360 | -0.01321 | 10.7331 | +7.2841 -1 | 0.5649 | 0.380 |
| 0.72051 | 0.05756 | -10.4899 | 5.191 -1 | 0.9022 | -0.457 | 0.81704 | -0,00733 | 9.0608 | .9.821 -1 | 0.5394 | 0.439 |
| 0.75082 | 0.05183 | -11.3298 | 4.2851 -1 | U.8644 | -0.352 | 0.86319 | -0.00121 | 5.9425 | ·1.386 · · · | 0.5130 | 0.498 |
| 0.78316 | 0.04514 | -12.0395 | 3.2041 -1 | 0.8257 | -0.265 | 0.96020 | 0.00109 | -3.5723 | +1.846 +0 | U.5130 | 0.498 |
| 0.81838 | 0.03745 | -12.5775 | 2.0141 -1 | 0.7861 | -0.104 | 0.97816 | -0.00032 | -5.5151 | +1.938 + +0 | 0.5264 | 0.469 |
| 0.85735 | 0.02464 | -12.8939 | 7.6121 -2 | 0.7454 | -0.061 | 0.98897 | -0.00145 | -6.7713 | +2.1111 +0 | 0.5394 | 0.439 |
| 0.90012 | 0.01879 | -12.9145 | -6.2321 -2 | 0.7032 | 0.045 | 0.99547 | -0.00225 | -7.5880 | ·2.162· ·0 | 0.5523 | 0.409 |
| 0.94447 | 0.00870 | -12.5279 | -2.4961 -1 | V.6594 | 0.153 | 0.99918 | -0.00275 | -7.9294 | ·2.891 · -1 | 0.5649 | 0.360 |
| 0.48276 | 0.00049 | -11.6105 | -6.6491 -1 | 0.6135 | 0.265 | 1.00000 | 0,00213 | -9.4533 | | 0.5686 | 0.372 |
| 1.00000 | 0.0047 | -9.4533 | 0.047. | 0.5686 | 0.372 | 2.00009 | | -7.4333 | | 086 | 0.312 |
| | | ,55 | | | 0.3.2 | 00 0-011 | | | | | |

CO-ORDINATES OF SONIC LINE

| X | Z |
|---------|--------|
| 0.01953 | 0,0368 |
| 0.01957 | 0.0389 |
| 0.02006 | 0.0423 |
| 0.02107 | 0.0463 |
| 0.02236 | 0,0516 |
| 0.02389 | 0.0587 |
| 0.02612 | 0.0076 |
| 0.03006 | 0.0784 |
| 0.03697 | 0.0924 |
| 0.04823 | 0,1138 |
| 0.06577 | 0.1501 |
| 0.08293 | 0.1869 |
| 0.10739 | 0,2359 |
| 0.14366 | 0.2955 |
| 0.19795 | 0.3567 |
| 0.25361 | 0.3910 |
| n.29768 | 0.4014 |
| 0.34585 | 0.3983 |
| 0.39593 | 0.3802 |
| 0.44531 | 0.3485 |
| 0.49159 | 0.3064 |
| 0.53311 | 0.2581 |
| 0.58503 | 0.1826 |
| 0.63623 | 0.0883 |
| 0.67200 | 0.0086 |
| | |

TABLE 4.1 Technical tables of aerofoil NLR HT 7310810

| | חו | 2 | n | PA | DT |
|--------------|----|---|---|----|----|
| \mathbf{u} | ~ | ~ | ~ | PA | ĸ. |

LOWER PART

| x | Z | x | Z | x | Z | x | Z |
|-----------|------------------------|------------------------|------------------------|---------------------|----------------------|--------------|--|
| 0.0000012 | 0004162 | 0.4297667 | +.0880434 | 0.00000 | 1200041 | | 0725326 |
| 0.0002895 | +.0052191 | 0.4386048 | +.0978957 | 0.00023 | | 3/ 0.4688157 | 0717156 |
| 0.0008861 | +.0095965 | 0.4562811 | +.0876982 | 0.00071 | | | |
| 0.0011758 | +.0112217 | 0.4651193 | +.0872324 | 0.00094 | 3101022 | 06 0.4933971 | 0691512 |
| 0.0014662 | +.0126337 | 0.4728611 | +.0867899 | 0.00117 | | | 06#3376 0675138 |
| 0.0020176 | +.0150413 | 0.4983450 | +.0864327 | U.00165 | 1401292 | 93 0.5133493 | 0666367 |
| 0.0022988 | +.0160878 +.0170734 | 0.4960870 | +.0861171 +.0858307 | 0.00177 | | | 0656939 |
| 0.0028314 | +.0179878 | 0.5091750 | +.0855260 | 0.00516 | | | |
| 0.0042209 | +.0220523 | 0.5157191 | +.085 2025 | 0.00243 | 9701519 | 0.5431744 | 0623191 |
| 0.0056121 | +.0254172 | 0.5222632 | +.0843503 +.0844135 | 0.00317 | | | 0609873 |
| 0.0091862 | +.0305312 | 0.5383319 | +.0839359 | 0.00461 | 5301476 | 34 0.5635167 | 0590373 |
| 0.0094795 | +.0326872 | 0.543688? | +.0836020 +.0830195 | 0.00527 | | | |
| 0.0119867 | +.0363594 | 0.5613261 | +.0823 176 | 0.00652 | 46 02300 | 0.5916240 | 0558514 |
| 0.0131194 | +.0378449 | 0.5686577 | +.0814492 | 0.00739 | 92 02405 | 0.6011052 | 0523434 |
| 0.0153049 | +.0404096 | 0.5922243 | +.0812713 | U.00823 | 4802513 0702616 | | 0505882 |
| 0.0164386 | +.0416005 | 0.5884593 | +.0802173 | 0.00995 | 6302711 | 0.6288662 | |
| 0.0175319 | +.0476834 | 0.5938567 | +.0797321 | 0.01042 | | | 0451694 |
| 0.0194052 | +.0443882 | 0.6040016 | +.0797/04 | 0.01275 | 6102989 | 40 0.6550535 | 0433366 0414889 |
| 0.0202255 | +.0450753 +.0457913 | 0.6087441 | +.0782972 | 0.01349 | | 76 0.6637283 | 0396149 |
| 0.0223832 | +.0467230 | 0.6174213 | +.0773934 | 0.01709 | 1003335 | | 0376348 |
| 0.0240550 | +.0478651 | 0.5254040 | +.0765152 | 0.01795 | 0603395 | 0.6915939 | 0334/59 |
| 0.0265278 | +.0493759 | 0.6329263 | +.0755459 | 0.01841 | | | 0313082 |
| 0.0274908 | +.0499059 | 0.6470765 | +.0739003 | 0.02073 | 2503577 | 0.7223508 | 0266371 |
| 0.0276023 | +.0499651 | 0.6539319 | +.0730023 | 0.02193 0.02314 | | 0.7279285 | 0254030 |
| 0.0279647 | +.0501553 | 0.6674601 | +.0711319 | U.02454 | 98037986 | | 0241734 |
| 0.0281700 | +.0502615 | 0.6742447 | +.0701454 | 0.02595 | | 0.7446616 | 0217322 |
| 0.0291330 | +.0507471 | 0.6911995 | +.0691019 | 0.02689 | | | 0204404 |
| 0.0296602 | +.0510052 | 0.6951093 | +.0669196 | 0.03233 | 3504177 | 0.7625439 | 0178924 |
| 0.0300455 | +.0511909 +.0513850 | 0.7020644 | +.0657827 +.0645558 | 0.03410 0.03588 | | | 0166403 |
| 0.0310492 | +.0516694 | 0.7166857 | +.0632973 | 0.03765 | 4604397 | | 0152405 0138661 |
| 0.0316879 | +.0519702 +.0526347 | 0.7239965 | +.0620092 | 0.03942 | | 0.7888000 | 0125201 |
| 0.0378375 | +.0546577 | 0.7390044 | +.0592694 | 0.04522 | | | 0112058 |
| 0.0425480 | +.0564729 | 0.7467015 | +.0578191 | 0.04812 | 4704769. | 0.8125308 | 00806/4 |
| 0.0472590 | +.0581064 +.0595825 | 0.7543987 | +.0563396 | 0.05102 0.05653 | 32048605 81050231 | | 0065919 |
| 0.0566824 | +.0609237 | 0.7703087 | +.0531951 | 0.06205 | 25 051726 | | 0051848 |
| 0.0613946 | +.0621505 +.0632814 | 0.7785216 | +.0515298 | 0.06756 | | 0.8497929 | 0021236 |
| 0.0708199 | +.0643330 | 0.7867346 | +.0498382 | 0.0/308 | | | 0007717 |
| 0.0764002 | +.0654949 | 0.8038922 | +.0462276 | 0.08113 | 12056146 | 0.8763318 | +.0011324 |
| 0.0848828 | +.0663708 | 0.8129369 0.8217915 | +.0443096 | 0.04515 0.08918 | | | |
| 0.0988097 | +.0678502 | 0.9307263 | +.0404069 | 0.09293 | 99 058458 | 0.9067813 | |
| 0.0926554 | +.0685253 +.0692159 | 0.9406234 | +.0382174 | 0.09669 0.10045 | | 0.9169321 | **0041886 |
| 0.1028790 | +.0702150 | 0.8604179 | +.0337880 | 0.10421 | 4706043 | 0.9270833 | ************************************** |
| 0.1090235 | +.0711645 | 0.8703152 0.8804741 | +.0315545 | 0.10789 0.11156 | | 0.9473873 | +.0047565 |
| 0.1225001 | +.0730979 | 0.9906331 | +.0269475 | 0.11524 | | | *.0045921 *.0042446 |
| 0.1371749 | +.0740738 +.0750008 | 0.9007920 | +.0246399 | 0.11892 | | 0.9748111 | +.0036900 |
| 0.1451619 | +.0759587 | 0.9137647 | +.0216964 | 0.12646 0.13400 | | | ••0032994 |
| 0.1531492 | +.0768671 | 0.9340827 | +.0171138 | 0.14170 | | 0.9930485 | +.0029450 +.0025507 |
| 0.1709103 | +.0787225 | 0.9442415 | +.0148440 | 0.14940 0.15813 | | | +.0021591 |
| 0.1757516 | +.0791914 | 0.9636815 | +.0105616 | 0.16687 | 068735 | 1.0026541 | *.0018774 *.0015787 |
| 0.1930136 | +.0798669 +.0805103 | 0.9585437 | +.0095059 | 0.17561 0.18435 | | 1.0040264 | +.0014231 |
| 0.1956374 | +.0809654 | 0.9782680 | +.0074251 | 0.18952 | 070899 | 1.0106277 | *.0010317 *.0006148 |
| 0.2009991 | +.0814040 | 0.9931300 | +.0064005 | 0.19469 | 28071340 15071763 | 1.0143956 | 0001129 |
| 0.2117226 | +.0822338 | 0.9928541 | +.0053844 | 0.20503 | | | *.0000000 |
| 0.2175970 | +.0826623 | 0.9977161 | +.0034069 | 0.21103 | 072616 | | |
| 0.2293459 | +.0834659 | 0.9499052 | +.0029695 | 0.21704 | | | |
| 0.2352205 | +.0838419 | 1.0042533 | +.0021046 | 0.22905 | 52073820 | 0 N.B. | |
| 0.2482030 | +.0846135 | 1.0086614 | +.0016772 | 0.23631 0.24357 | | 8 | |
| 0.2546944 | +.0849698 | 1.0108504 | +.00003120 | 0.25083 | 07500H | redefine | d coordinate |
| 0.2611858 | +.0853068 | 1.0130394 | +.0004144 | 0.25809 | | | or which |
| 0.2755442 | +.0859859 | 1.0152284 | +.0000000 | 0.27665 | 5076060 | α = | -0.194° |
| 0.2827236 | +.0862918 | | | 0.28592 | 10076347 | aesign | |
| 0.2977752 | +.0863622 | | | 0.295209 0.30535 | | 8 | |
| 0.3056476 | +.0871229 +.0873584 | | | 0.31551 | 9 076947 | 4 | |
| 0.3213925 | +.0875690 | | | 0.32566 | | | |
| 0.3300467 | +.0877723 | | | 0.34603 | 2077071 | 6 | |
| 0.3387010 | +.0879461 | | | 0.35619 0.36634 | | | |
| 0.3560099 | +.0882071 | | | 0.376499 | 0076683 | 17 | |
| 0.3742734 | +.0882986 +.0883584 | | | U.386646 | | | |
| 0.3834053 | +.0883857 | | | 0.40694 | 075736 | 2 | |
| 0.3925373 | +.0883833 | | | 0.41710 | 11075282 | 7 | |
| 0.4111518 | +.0892789 | | | 0.42725 | 08074754 | | |
| 0.4204592 | +.0881775 | | | 0.44755 | | | |

TABLE 4.2 Co-ordinates of aerofoil NLR HT 7310810

| U | pper Sur | face | Le | ower Surf | 'ace | Tube | z (mm) | Tube | z (mm) |
|------|----------|-------|------|-----------|-------|------|-----------|------|-----------|
| hole | x/c | z/c | hole | x/c | z/c | 1 | 192.0 | 36 | - 2.0 |
| 1 | 0 | 0004 | 32 | .9781 | .0037 | 2 | 176.0 | 37 | - 4.0 |
| 2 | .0033 | .0196 | | .9487 | .0037 | 3 4 | 160.0 | 38 | - 6.0 |
| | | | 33 | | | | 144.0 | 39 | - 8.0 |
| 3 | .0124 | .0369 | 34 | .9188 | .0043 | 5 6 | 128.0 | 40 | - 10.0 |
| | .0207 | .0454 | 35 | .8785 | .0013 | | 112.0 | 41 | - 12.0 |
| 5 | .0299 | .0511 | 36 | .8377 | 0039 | 7 | 96.0 | 42 | - 14.0 |
| 6 | .0397 | .0554 | 37 | .7994 | 0104 | 8 | 88.0 | 43 | - 16.0 |
| 7 | .0499 | .0590 | 38 | .7597 | 0185 | 9 | 80.0 | 44 | - 18.0 |
| 8 | .0600 | .0618 | 39 | .7193 | 0273 | 10 | 72.0 | 45 | - 20.0 |
| 9 | .0748 | .0651 | 40 | .6791 | 0361 | 11 | 64.0 | 46 | - 22.0 |
| 10 | .0998 | .0697 | 41 | .6393 | 0447 | 12 | 60.0 | 47 | - 24.0 |
| 11 | .1300 | .0741 | 42 | .5996 | 0526 | 13 | 56.0 | 48 | - 26.0 |
| 12 | . 1649 | .0781 | 43 | .5496 | 0613 | 14 | 52.0 | 49 | - 28.0 |
| 13 | . 1995 | .0813 | 1414 | .4998 | 0684 | 15 | 48.0 | 50 | - 30.0 |
| 14 | .2498 | .0847 | 45 | .4497 | 0733 | 16 | 44.0 | 51 | - 32.0 |
| 15 | .2998 | .0869 | 46 | .3999 | 0760 | 17 | 40.0 | 52 | - 36.0 |
| 16 | .3497 | .0881 | 47 | .3499 | 0770 | 18 | 36.0 | 53 | - 40.0 |
| 17 | .3993 | .0883 | 48 | .2998 | 0767 | 19 | 32.0 | 54 | - 44.0 |
| 18 | .4492 | .0876 | 49 | .2499 | 0750 | 20 | 30.0 | 55 | - 48.0 |
| 19 | .4996 | .0860 | 50 | .2000 | 0718 | 21 | 28.0 | 56 | - 52.0 |
| 20 | .5493 | .0832 | 51 | .1649 | 0685 | 22 | 26.0 | 57 | - 56.0 |
| 21 | .5993 | .0792 | 52 | .1300 | 0643 | 23 | 24.0 | 58 | - 60.0 |
| 22 | .6493 | .0736 | 53 | .1000 | 0598 | 24 | 22.0 | 59 | - 64.0 |
| 23 | .6993 | .0661 | 54 | .0650 | 0525 | 25 | . 20.0 | 60 | - 72.0 |
| 24 | .7494 | .0573 | 55 | .0370 | 0437 | 26 | 18.0 | 61 | - 80.0 |
| 25 | .7982 | .0475 | 56 | .0180 | 0340 | 27 | 16.0 | 62 | - 88.0 |
| 26 | .8385 | .0388 | 57 | .0079 | 0247 | 28 | 14.0 | 63 | - 96.0 |
| 27 | .8786 | .0297 | 58 | .0018 | 0134 | 29 | 12.0 | 64 | -112.0 |
| 28 | .9184 | .0207 | | | | 30 | 10.0 | 65 | -128.0 |
| 29 | .9479 | .0140 | | | | 31 | 8.0 | 66 | -144.0 |
| 30 | .9784 | .0074 | | | | 32 | 6.0 | 67 | -160.0 |
| 31 | 1.0000 | .0030 | | | | 33 | 4.0 | 68 | -176.0 |
| - | | | | | | 34 | 2.0 | 69 | -192.0 |
| | | | | | • | 35 | 0.0 | 0,9 | -1,72.0 |

chord = 180.05 mm

TABLE 4.3 Co-ordinates of the model pressure holes

TABLE 4.4 z -ordinates of the wake rake total pressure tubes

| PMT-SSUMETHOLE PMT-SS | | | | TRAN | SITION | FREE | | | | | | | | TRANS | HOITI | FIXED | | | | |
|--|--------|---------|-------------|----------|-----------|-----------------------|----------|-------|----------|-------|---------|-----------|---------|----------|-----------|---------------------------|----------|-------|---------|-------|
| Purt Stuffer Tool Purt S | FE | .11E+07 | CLB CCPB | .3153 | CDP CP | .3100 0010 0679 | | | | | REC | .11C+07 C | UPB UPB | 0.3079 | CL CDP | 0.302 -0.001 -0.063 | 1 | | | |
| 1 1.017 0.9977 v1 -0.065 0.9362 1 0.000 v1 C.022 1 1.007 0.9901 v1 -0.095 0.9330 1 0.000 v1 -0.057 0.9330 1 0.000 v1 -0.057 0.9901 v1 -0.095 0.9330 1 0.000 v1 -0.057 0.9901 v1 -0.095 0.9330 1 0.000 v1 -0.057 0.9901 v1 -0.095 0. | PESSIF | | | PHESSURI | | | PRESSURE | TUBE | PRESSURE | ETUBE | PRESSUR | | | PRESSURE | | | PRESSURE | TURE | PRESSUR | BUTT |
| 2 0.584 0.7716 | HIMBER | | | | | | | | | | NUMBER | | | | | | NUMBER | | | CPME |
| 5 -0.501 0.108 43 -0.274 0.724 35 0.000 43 0.001 3 -0.497 0.909 43 0.000 43 0.001 5 -1.125 0.8715 44 -0.344 0.2715 4 0.000 44 0.000 44 0.000 5 -1.125 0.8715 44 -0.345 0.3190 4 0.000 45 0.000 65 -1.125 0.8715 44 -0.345 0.3190 45 0.000 45 0.000 65 -1.126 0.8715 44 -0.345 0.3190 5 0.000 45 0.000 65 -1.126 0.8715 45 -0.380 0.9146 5 0.000 45 0.000 65 -1.126 0.8715 45 -0.380 0.9146 5 0.000 45 0.000 65 -1.126 0.8715 45 -0.380 0.9146 5 0.000 45 0.000 65 -1.126 0.8715 45 -0.380 0.9146 5 0.000 45 0.000 65 0.0000 65 0.000 65 0.000 65 0.000 65 0.0000 65 0.0000 65 0.000 65 0.000 65 0.000 65 0.0000 65 0. | 1 | | | | | | 1 | | | | 1 | | | | | | 1 | | | 0.00 |
| ** -1.155 0.8719 *** -0.344 0.9196 *** 0.000 * | 5 | | | | | | 5 | | | | | | | | | | | | | -0.00 |
| 5 -1,277 0,8659 45 -0,385 0,9172 5 0,000 45 0,000 5 -1,27 0,785 45 -0,386 0,9174 5 0,000 45 0,000 1 -1,272 0,8753 46 -0,385 0,9174 7 0,000 45 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 45 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9174 7 0,000 47 0,000 1 -1,272 0,8753 47 -0,385 0,9184 1 -1,272 0,9184 1 -1,272 0,8753 47 -0,385 0,9184 1 -1,272 0 | | | | | | | | | | | | | | | | | 3 | | | 0.00 |
| 6 -1.124 0.8755 46 -0.394 0.9166 6 0.000 46 0.000 7 -1.127 0.8759 46 -0.380 0.9167 6 0.000 47 0.00 7 -1.074 0.8759 47 -0.385 0.9178 7 0.000 47 0.00 47 0.00 17 -1.074 0.8759 47 -0.385 0.9178 7 0.000 47 0.00 47 0.00 17 -1.075 0.8759 47 -0.385 0.9178 7 0.000 47 0.00 48 0.00 18 -0.491 0.8759 0.9189 10 0.000 48 0.00 18 -0.491 0.8759 0.9189 10 0.000 48 0.00 18 0.0000 18 0.0000 18 0.00 | | | | | | | | | | | | | | | | | : | | | 0.00 |
| 7 -1.07A 0.87bw w7 -0.361 0.9175 7 0.000 w7 0.000 | 6 | | | | | | 6 | | | | | | | | | | 6 | | | 0.00 |
| ## -0.999 | 7 | -1.078 | 0.8764 | 47 | -0.381 | 0.9175 | 7 | 0.000 | 47 | 0.000 | 7 | -1.072 | | | | | 7 | | | 0.00 |
| 10 | | | | | | | | | | | 8 | -0.991 | | | -0.433 | | A | | 48 | 0.00 |
| 11 | 9 | | | | | | | | | | | | | | | | | 0.000 | | 0.00 |
| 12 | | | | | | | | | | | | | | 50 | | | | | | 0.00 |
| 15 | | | | | | | | | | | | | | | | | | | | 0.00 |
| 14 -0.566 0.9064 94 -0.514 0.7233 15 0.000 55 0.000 16 -0.551 0.9062 94 -0.312 0.9200 14 0.000 55 0.00 16 -0.551 0.9062 95 -0.211 0.7233 15 0.000 55 0.00 16 -0.557 0.9070 95 -0.201 0.7233 15 0.000 55 0.00 17 -0.553 0.9062 95 -0.201 0.7234 16 0.000 55 0.00 17 -0.553 0.9062 95 -0.201 0.7244 16 0.000 55 0.00 17 -0.553 0.9062 95 -0.201 0.7244 16 0.000 55 0.00 17 -0.553 0.9062 95 -0.201 0.7244 16 0.000 55 0.00 17 -0.553 0.9062 95 -0.201 0.7244 16 0.000 55 0.00 17 -0.557 0.9070 95 -0.001 0.7244 16 0.000 55 0.00 17 -0.557 0.9070 95 -0.001 0.7244 16 0.000 55 0.00 17 -0.557 0.9070 95 -0.001 0.7244 16 0.000 55 0.00 17 -0.557 0.9070 95 -0.001 0.7244 16 0.000 55 0.00 17 -0.557 0.9070 95 -0.001 0.7244 16 0.000 55 0.00 17 -0.557 0.9070 95 0.9070 95 0.000 | | | | | | | | | | | | | | | | | | | | 0.00 |
| -0.561 0.9069 95 -0.281 0.9227 15 0.000 55 0.000 16 -0.566 0.9080 95 -0.281 0.9227 15 0.000 55 0.00 16 -0.566 0.9080 95 -0.281 0.9227 15 0.000 55 0.00 17 -0.566 0.9080 95 -0.281 0.9227 15 0.000 55 0.00 17 -0.566 0.9080 95 -0.281 0.9227 15 0.000 57 0.000 17 -0.566 0.9080 95 -0.281 0.9080 95 0.000 97 0.566 0.9080 97 0.566 0.9080 97 0.566 0.9080 97 0.566 0.9080 97 0.566 0.9080 97 0.566 0.9080 97 0.568 0.9080 97 0.568 0.9080 97 0.568 0.9080 97 0. | | | | | | | | | | | | | | | | | | | | |
| 16 -0.446 0,4076 56 -0.079 0.7552 1b 0.000 56 0.000 11 -0.557 0.000 75 0.000 17 -0.558 0,7017 56 -0.001 0.9344 1e 0.000 57 0.001 17 -0.553 0,7017 58 0.7017 59 0.000 17 0.000 17 0.000 17 0.000 17 0.000 17 0.000 17 0.000 17 0.000 17 0.000 18 0.0000 18 0.000 18 0.0000 18 0.0000 18 0.0000 18 0.0000 18 0.0000 18 0.0000 18 0.0000 18 0.0000 | | | | | | | | | 55 | | | | | | | | | | | 0.00 |
| 14 -0.551 6, 9065 9A 0.760 0.9905 10 0.000 5B 0.000 18 -0.551 0,0070 5B 0.880 0.9003 1A 0.000 5P 0.000 19 -0.552 0.9083 1A 0.000 5P 0.000 | | | | | | | | | | | | -0.547 | 0.9070 | | | | 16 | | | 0.00 |
| 19 | | | | | | | | | | | | | | | | | | 0.000 | | 0.00 |
| 20 | | | | 54 | 0.860 | 0.9905 | | | | | | | | 58 | 0.859 | 0.9903 | | | | 0.00 |
| 21 -6.495 0.9167 21 0.000 61 0.000 21 -0.490 0.9163 21 0.000 62 0.000 22 -0.440 0.9133 22 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 62 0.000 63 0.0 | | | | | | | | | | | | | | | | | | | | 0.000 |
| 22 -6.451 6,4155 22 0.000 62 0.000 22 -0.440 0.0131 22 0.000 63 0.00 22 -0.470 0.0131 22 0.000 63 0.00 | | | | | | | | | | | | | | | | | | | | 0.000 |
| 25 -0.377 0.9174 25 0.000 k3 0.000 21 -0.377 0.92774 25 0.000 k3 0.000 24 -0.377 0.9278 22 0.000 k4 0.00 24 -0.377 0.9279 22 0.000 k4 0.00 24 -0.377 0.9279 22 0.000 k4 0.00 24 -0.377 0.9279 22 0.000 k4 0.00 25 -0.185 0.9285 28 0.000 k4 0.00 25 -0.185 0.9285 28 0.000 k5 0.0 26 0.000 k5 0.0 27 0.000 k5 0.0 27 0.000 k5 0.0 28 0.0 28 0.0 28 0.0 28 0.000 k5 0.0 28 0.0 2 | | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | 23 | | | | | | | | | | | | | 0.000 |
| 24 -0.189 0.9247 25 0.000 65 0.000 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 25 -0.185 0.9265 28 0.000 65 0.00 6 | | -0.265 | | | | | | 0.000 | | 0.000 | | | | | | | | | | 0.000 |
| 27 | | | | | | | | | | | | | | | | | 25 | | | 0.000 |
| 20 0.000 0.9451 20 0.000 68 0.000 20 0.000 0.000 20 0.000 0. | | | | | | | | | | | | -0.103 | | | | | 26 | 0.000 | 66 | 0.000 |
| 29 0.090 0.9951 29 0.000 69 0.000 20 0.0056 20 0.0056 20 0.005 69 | | | | | | | 27 | | | | | | | | | | | | | 0.000 |
| 10 0.135 0.497A 130 0.000 33 0.137 0.4375 30 0.000 13 0.137 0.4375 31 0.000 13 0.137 0.4375 31 0.000 13 0.137 0.4375 31 0.000 13 0.137 0.4375 31 0.000 13 0.000 13 0.137 0.4375 31 0.000 13 0.4375 31 0.000 13 0.4375 31 0.000 13 0.4375 31 0.000 13 0.4375 31 0.000 13 0.4375 31 0. | | | | | | | | | | | | | | | | | | | | 0.000 |
| \$1 0.207 0, 4570 11 0.000 21 0,197 0,4817 21 1 0.000 \$17 0,197 0,4817 2 | | | | | | | | | 67 | 0,000 | | 0.095 | | | | | | | 69 | 0.000 |
| \$2 | | | 0.9520 | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | | |
| 34 | | | | | | | | 0.001 | | | | | | | | | | | | |
| 55 0.27 35 0.290 0.9566 35 0.240 35 0.27 36 0.290 0.9566 35 0.240 35 0.291 0.9570 36 0.091 37 0.280 0.9584 3h 0.171 37 0.280 0.9586 37 0.183 37 0.183 37 0.280 0.9510 37 0.076 37 0.076 37 0.280 0.9510 37 0.076 38 0.292 38 0.292 38 0.292 38 0.185 0.480 3h 0.017 39 0.092 0.9890 38 0.080 39 0.080 0.9840 3h 0.017 | | | | | | | | | | | | | | | | | | | | |
| 36 6,291 0,250 36 0,001 36 0,259 0,0548 36 0,111 37 0,278 0,0554 37 0,115 37 0,278 0,0554 37 0,185 37 0,278 0,0554 37 0,0451 37 0,076 37 0 | | | | | | | 35 | | | | | | | | | | | | | |
| 36 0,154 0,4452 36 0,242 37 0,200 0,4516 37 0,016 54 0,4450 38 0,017 0,4452 39 0,002 | | | | | | | | | | | | 0.259 | | | | | | | | |
| 59 0.092 0.495 39 0.222 36 0.145 0.9460 34 0.017 39 0.016 0.9442 39 0.002 | | | | | | | | | | 10 | | | | | | | | | | |
| 0.016 0.9462 39 0.002 | | | | | | | | | | | | | | | | | | | | |
| | | 0.016 | | | | | | 0.153 | | | 39 | -0.006 | 0.9442 | | | | 39 | 0.002 | | |

TABLE 4.5 Aerodynamic test data

| | TRANSITION FREE | | | TRANSITION FIXED | |
|--|--|--|--|--|--|
| MAIS | .8500 ALPHA .5909 .3256 CL .5189 .0020 CDP0007 0739 CH0722 CD .0096 | | MAN .500 ALPHAT MFC .178.07 CLB 10 1516. CDPH CAB | .6500 ALPHA .4140 .3109 (L .5045 .0020 (DP .0005 .0649 (M .0653 (D .0110 | |
| MOURL PER SCHMCHALE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | MODEL | URETURE PRESSURETURE | ### MOFIL Page Students | MODEL MASSIMPLINE PAPE P | E MR 000 000 000 000 000 000 000 000 000 |
| MAH .599 ALPHAT HEC .19E+07 CLH QH 2018. CDPH CMH | .8500 ALPHA .3832 .3506 CL .3227 .0034 CDP .0007 | | MAB .99 ALPHAT REC .19E-07 CLB QR 2026, CDPR | .8500 ALPHA .4156 .5112 CL .5037 .0036 CDP .0012 | |
| MOUEL PRESSUREHOLE NUMBER CPIH PI/PO | 0765 CM0745 CD .0098 MODEL PRESSUREHOLE PRESSURENCE PRESSURENCE NUMBER CPIB PI/PO NUMBER | URETURE PRESSURETURE | MODEL PPESSURFHOLE NUMBER CPIA PI/PO | 0677 CM0659 CD .0112 MODEL WAKE RAKE WAKE RAKE PRUSSURETURE PRESSURETURE PRESSURETURE NUMBER COTP P1/PD NUMBER COUNT | |
| 1 1, ne7 0, 9949 2 0, 706 6 0, 9256 3 -0, 266 7 0, 72516 4 -1, 746 0 0, 7256 6 -1, 746 0 0, 5559 7 -1, 289 0 0, 7266 10 -0, 23 0 0, 6225 11 -0, 13 0 0, 6225 12 -0, 13 0 0, 6225 13 -0, 13 0 0, 6225 14 -0, 13 0 0, 6231 15 -0, 13 0 0, 6231 16 -0, 645 0 0, 6551 16 -0, 645 0 0, 6551 16 -0, 645 0 0, 6551 17 -0, 645 0 0, 6551 18 -0, 645 0 0, 6551 18 -0, 645 0 0, 6551 19 -0, 645 0 0, 6551 20 -0, 10 0, 6652 21 -0, 10 0, 6652 22 -0, 10 0, 6652 23 -0, 21 0, 6652 24 -0, 10 0, 6652 25 -0, 10 0, 6652 26 -0, 10 0, 6652 27 -0, 10 0, 6652 28 -0, 10 0, 7262 29 -0, 10 0, 7262 20 -0, 10 0, 7262 21 -0, 10 0, 7262 22 -0, 10 0, 7262 23 -0, 10 0, 7262 24 -0, 10 0, 6653 25 -0, 10 0, 7262 26 -0, 10 0, 7262 27 -0, 10 0, 6653 28 -0, 10 0, 7262 28 -0, 10 0, 7262 29 -0, 10 0, 7262 20 -0, 10 0, 7262 20 -0, 10 0, 7262 21 -0, 10 0, 7262 22 -0, 10 0, 7262 23 -0, 10 0, 7262 24 -0, 10 0, 7262 25 -0, 10 0, 7262 26 -0, 10 0, 7262 27 -0, 10 0, 7262 28 -0, 10 0, 7262 29 -0, 10 0, 7262 20 0, 7262 20 0, 7 | 11 -0.102 0.76+3 was 1 1 -0.102 0.76+3 was 1 1 -0.102 0.76+3 was 1 -0.106 0.705 0.70 | 1,000 1,00 | 1 0.65 0.996 2 0.679 0.921 3 -0.679 0.921 4 -1.079 0.571 6 -1.294 0.5354 7 -1.294 0.5354 7 -1.294 0.5354 10 -0.924 0.623 11 -0.806 0.625 12 -0.756 0.655 12 -0.756 0.655 12 -0.671 0.665 12 -0.671 0.665 12 -0.671 0.665 12 -0.671 0.665 12 -0.671 0.665 14 -0.672 0.655 15 -0.673 0.656 16 -0.672 0.656 17 -0.673 0.665 18 -0.673 0.656 19 0.673 0.675 19 0.675 10 0.675 1 | 41 -0.119 0.7610 1 0.000 41 0. 42 -0.214 0.7423 2 0.000 42 0. 43 -0.329 0.7194 3 0.000 43 0. 44 -0.329 0.7194 3 0.000 43 0. 44 -0.046 0.4646 8 0.000 46 0. 44 -0.514 0.4640 7 0.000 46 0. 44 -0.514 0.4640 7 0.000 46 0. 45 -0.472 0.4674 7 0.000 47 0. 46 -0.582 0.4674 7 0.000 47 0. 47 -0.472 0.4614 9 0.000 49 0. 50 -0.445 0.4674 10 0.000 49 0. 51 -0.445 0.4674 11 0.000 50 0. 52 -0.450 0.4674 11 0.000 50 0. 53 -0.450 0.4674 11 0.000 50 0. 54 -0.490 0.7657 14 0.000 53 0. 55 -0.3574 0.7657 15 0.000 53 0. 55 -0.374 0.7657 15 0.000 55 0. 55 -0.374 0.7657 15 0.000 55 0. 56 0.499 0.7657 15 0.000 55 0. 57 0.170 0.7589 15 0.000 55 0. 58 0.499 0.7657 17 0.000 55 0. 59 0.499 0.7657 18 0.000 55 0. 50 0.499 0.7657 18 0.000 55 0. 50 0.496 0.5616 15 0.000 55 0. 51 0.496 0.5616 15 0.000 55 0. | 0000 0000 0000 0000 0000 0000 0000 0000 0000 |
| #A5 .649 ALPHAT REC .20E-07 CLB GR 2273. CDPR CNB | .8500 ALPHA .3833 .3503 CL .3214 .0046 CDP .0019 -0772 CR -0750 CD .0101 | | MAH .650 ALPHAT REC .20E+07 CLB QR 2285 CDPB CMB | .65n0 Aurit .205 .3043 Ct .2967 .0049 CDP .0026 -0871 CR0851 CD .0117 | |
| MODEL PRESSURFHULE NUMBER 1 1.107 0.999% 2 0.755 0.9210 3 0.925 0.9210 5 0.926 0.9210 5 0.926 0.926 6 -1.280 0.956 7 -1.307 0.956 6 -1.280 0.956 7 -1.307 0.956 6 -1.280 0.956 7 -1.307 0.956 6 -1.280 0.956 7 -1.307 0.956 10 -0.972 0.556 11 0.687 0.556 11 0.687 0.556 12 0.675 0.556 13 0.675 0.600 14 0.656 0.957 15 0.656 0.956 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 17 0.657 0.600 18 0.657 0.600 19 0.658 | NOTE NUMBER PI PO | MARC WART CARE WART CARE WART CARE WART CARE WART CARE CPUB CPUB | PROFILE PURSSUME HOLE VININGE 2 0,794 0,918 1 2 0,794 0,918 1 3 1,103 0,998 1 3 0,794 0,918 1 3 1,212 0,485 2 4 -0,123 0,485 2 4 -1,121 0,487 2 5 -1,136 0,483 2 4 -1,121 0,487 2 110 -0,492 0,485 2 4 -1,121 0,485 2 4 -1,121 0,485 2 111 -0,192 0,592 0,592 0 112 -0,193 0,592 0,592 0 113 -0,193 0,592 0,592 0 114 -0,193 0,594 0 115 -0,194 0,686 0,694 1 116 -0,195 0,694 0,694 1 117 -0,466 0,690 0,690 1 118 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,466 0,690 0,690 0 119 -0,477 0,476 0,690 0 119 -0,476 0,475 0,476 0 119 -0,476 0,475 0,476 0 119 -0,476 0,475 0,476 0,475 0 119 -0,476 0,475 0,476 0,475 0 119 -0,476 0,475 0,476 0,475 0 119 -0,476 0,475 0,476 0,475 0,476 0,475 0, | | W0000000000000000000000000000000000000 |

TABLE 4.5 Aerodynamic test data (con'd)

| HAR .699 ALPHAY HET .211-02 CLS OR .2522 CUPH | TRANSITION FREE .6500 ALPIA | TRANSITION FIXED **AH** |
|---|--|--|
| MODEL MINISTER CATE MARCHAN | 0770 CR0740 | \$ -0.056 0.7125 45 -0.372 0.6294 5 0.000 45 0.000 5 -0.000 5 -0.772 0.5560 47 4 -0.575 0.5916 4 0.000 48 0.000 48 0.000 5 -0.772 0.5560 47 45 -0.655 0.5716 5 0.000 48 0.000 48 0.000 5 -0.772 0.4871 45 -0.655 0.5716 5 0.000 48 0.000 48 0.000 5 -0.665 0.5716 5 0.000 48 0.0000 48 0.0000 48 0.0000 48 0.0000 48 0.0000 48 |
| MAH 724 ALPHAT REC 22E-07 CLB QR 2645 CUPR CMB | .8500 5LPVA .3780 .3541 Ct .5255 .0866 CCP .0459 -0766 CK .0756 CC .0104 | #AN .724 ALPHAT .8500 ALPHA .8295 #FC .221-07 CLH .5012 CL .2918 OH 2664 CDDH .0042 CDF .0040 CH6 .0647 CF .0642 CD .0124 |
| *** STORY | Solid Color Colo | POST |
| MAR .7%7 ALPHAT REC .22E+07 CLB GR 2769 CUPR CMR | .8966 ALPHA 2532 .896 CD 4356 .0399 CD 4069 -0785 CM -0995 CD 5084 | Man .74# ALFHAT .8500 ALFHA .3502 MFC .274.07 CLN .3610 CL .368 OH .271 CN .684 CPA .6750 CN .6698 |
| MODIT MODIT | MODITAL PROPERTY PRESENTE USE PRESENTE USE | |

TABLE 4.5 Aerodynamic test data (con'd)

| | TRANSITION FREE | TRANSITION FIXED |
|--|--|--|
| MAD .774 ALPHAT MEC .221-67 CLH MB .2861, CDPH CMH | .8500 ALIVA .2544 -155 CL .5996 -0220 CD+ .6177 -1077 CM -1032 -0.661 | #4H .770 &LPUAT .8500 &LPHA .5570 HEC .236-07 CLD .5494 CL .3560 GH 2H07 CDP .0159 CHH0818 CH .0744 CD .0167 |
| MODEL DESCRIPTION FEATURE FE | MADEL PART PART | MODIFIC PRICE PLANE PLANE PLANE PLANE PLANE PRICE PR |
| MAH .600 ALPHAT MEC .235+07 CLB OB 2999 CDPP CMB | .#500 ALPNA .*251 .277% CL .2849 .MM5 CDP .0565 .2075 CR .0725 | Min .800 ALPHAT .8500 ALPHA .6208 MEC .25C+07 CLB .1741 CL .1668 GH 3016 CDPH .0566 CDP .0562 CPH .2234 CD .0447 |
| MODEL PMESSIGNATURE 1 1.187 0.9991 2 0.920 0.9991 3 0.920 0.9991 3 0.920 0.9991 4 0.999 0.5567 5 0.9953 0.4993 1 0.9953 0.4993 | 1 | More Par Surpring Page |
| MAIS | .6500 aLPHA .5e81 .2047 Ct1951 .641 CD .0604 | Man |
| MOUE L PRISSURFIFE PRISSURFIFE 2 | MOST Color PI | PODEL PMISSURE HOLE PMISSURE HOLE MARCHARD CPT |

TABLE 4.5 Aerodynamic test data (con'd)

The state of the s

| | TRANSITION FREE | TRANSITION FIXED |
|--|--|--|
| REC .22F+07 CLB GH 2754. CDPB CMH | -4.0000 ALPHA -3.8001 2186 CL2111 .0366 COP .035A 0766 CM0765 CD .0316 | MAR 7-49 ALPHAT0.000 ALPHA -3,7355- WTC -276-07 CLR -2.600 CL -2511 GR 2776. C096 -0.405 CD -0.831 CMR0.998 CD -0.365 |
| MODEL PRESSURFIGLE 1 10-4 0 75 0 . | MODEL PRESSURE UNITED PRESSURE UNITED PRESSURE UNITED PRESSURE UNITED PRESSURE UNITED PRESSURE UNITED UNITED PRESSURE UNITED UNITED | MOSTL PRESSURETURE 1 1.08.0 0.7920 1 1.08.0 0.7925 2 1.08.0 0.7925 3 0.103 0.7925 3 0.103 0.7925 4 0.103 |
| MAB .748 ALPHAT HEC .22E+07 CLB QR 2757 CDPB CMB | -2,0000 ALPHA -2,0751 0097 CL0093 .0093 CDP .0093 0099 CT0999 | MAF .749 ALPHAT -2.0000 fLPHA -1.9333 MfC .226.07 CLB -1.057 CL -1.020 GH 27A1, CDPB -0.152 CDP -0.0151 CHB -0.771 GH -0.7730 |
| MODEL PH STORMAN 1 10 2 1 10 6 0 4644 5 0 170 | MOPT L PHE SSURE PULE PHE SSURE TIME PHE SWARE TI | MODEL PMCSSURFIGLE PMCSSURFIGLE |
| MAH .747 ALPHAT HFC .22L-07 CLB GR 2757 CLBR CM0 | -1,0000 ALPHA -1,2861 .1640 CL .1382 .0067 CD .0059 -1127 CC .0074 | MAR ,7%M &LPH0T -1.0000 &LPHA -3.12%0 MFC .22f*67 CLE .0502 CL .0%AN OH .2776. COPH .0041 CDP .0046 CPH .07%2 CO .0120 |
| | Control Cont | FORT |

TABLE 4.5 Aerodynamic test data (con'd)

| | TRANSITION FREE | | TRANS | ITION FIXED | |
|--|---|--|--|--|--|
| MAH .746 ALPHAT HEC .225.07 CEH GH 2752. CDMR CMH | 0.0000 ALPHA3574 .2350 CL .2268 .0071 COP .0058 0852 CM0831 CO .0105 | | REC .22E.07 CLR .1963 OR 2777, COPR .0079 CMB0713 | ALPHA - 2986 CL 1894 CP - 0068 CM 0695 CD - 0121 | |
| MODEL MEDICAL PRESSIBILITION OF A CAPACA A CAPAC | MODEL MODEL | MARE RAKE PRESSURTINE UNINEE CPUID 3 0,000 4 0,000 4 0,000 7 0,000 4 0,000 7 0,000 10 0,000 11 0,000 12 0,000 13 0,000 14 0,000 15 0,000 16 0,000 17 0,000 18 0,000 19 0,000 19 0,000 19 0,000 10 0,000 11 0,000 11 0,000 12 0,000 13 0,000 14 0,000 15 0,000 17 0,000 18 0,000 19 0,000 19 0,000 10 0,000 10 0,000 11 0,000 12 0,000 12 0,000 13 0,000 14 0,000 15 0,000 16 0,000 17 0,000 18 0,000 18 0,000 19 0,000 19 0,000 10 0,000 11 0,000 11 0,000 11 0,000 12 0,000 13 0,000 14 0,000 15 0,000 17 0,000 18 0,000 19 0,000 19 0,000 10 0,000 10 0,000 11 0,000 11 0,000 12 0,000 13 0,000 14 0,000 15 0,000 15 0,000 17 0,000 18 0,000 19 0,000 | MOGEL MOGFL MOGFL PART MOGFL PART MOGFL PART PA | WAKE RAKE WAKE RAKE | PMR (1001) (1000 |
| MAR .747 ALPHAT REC .22E+07 CLH QR 2001. CDPR CMR | .9500 ALPHA .2749 .857 CL .4668 .0120 CDP .0063 -1013 CM0970 | | REC .221.407 CLH .3855 QH 2774, COPB .0105 CMB0728 | ALPHA .47n7 LL .3720 C .2720 | |
| MOUEL PRESCRIPTION PRESCRIPTIO | MOST | WARE RAKE PRESSURETURE 2 0.000 3 0.000 3 0.000 4 0.000 6 0.000 7 0.000 10 0.000 11 0.000 12 0.000 13 0.000 14 0.000 15 0.000 16 0.000 17 0.000 18 0.000 19 0.000 19 0.000 19 0.000 10 0.000 10 0.000 11 0.000 11 0.000 12 0.000 13 0.000 14 0.000 15 0.000 16 0.000 17 0.000 18 0.000 18 0.000 19 0.000 19 0.000 10 0.000 10 0.000 11 0.000 12 0.000 13 0.000 14 0.000 15 0.000 16 0.000 17 0.000 18 0.000 18 0.000 19 0.000 19 0.000 19 0.000 10 0.000 10 0.000 11 0.000 11 0.000 12 0.000 13 0.000 14 0.000 15 0.000 15 0.000 16 0.000 17 0.000 18 0.000 19 0.000 19 0.000 19 0.000 10 0.000 10 0.000 10 0.000 11 0.000 12 0.000 13 0.000 14 0.000 15 0.000 15 0.000 16 0.000 17 0.000 18 0.000 19 0.000 19 0.000 19 0.000 19 0.000 10 0.000 10 0.000 10 0.000 10 0.000 11 0.000 12 0.000 13 0.000 14 0.000 15 0.000 15 0.000 16 0.000 17 0.000 18 0.000 19 0.000 19 0.000 10 0.0000 10 0.0000 10 0.0000 10 0.0000 10 0.0000 10 0.0000 10 0.0000 10 0.0 | MODEL DEF SQUEENGLE DEF | WAKE RAKE WAKE RAKE | PMR 2000 1 20000 1 2000 1 2000 1 2000 1 2000 1 2000 1 2000 1 2000 1 2000 1 2000 |
| MAD .74A ALPHAT MEC .27E+07 CLH GR 2759. CUPB CMB | 2,0000 ALPHA 1,1403 .6352 CL .6113 .0256 COP .0161 -1080 CP -1025 | | REC .22E+07 CLB .5540 C QB 2782, CDPB .0223 C CMB0828 C | ALPHA 1.2531 L .5365 OD .0150 CR .0779 | |
| NOTE | 18.5 41 -0.052 0.6761 64 42 -0.0669 7 -0.0669 | Value Park | 3 -0.025 0.6024 % 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | Color | |

TABLE 4.5 Aerodynamic test data (con'd)

| | | | TRAN | ISITIO | N FREE | | | | | | | | TRAN | SITION | FIXED | | | | |
|------------------|---------|--------------------------|----------------------------------|--------|---|---------|-------|---------|-------|------------------|--------|------------------------------|----------------------------------|--------|---|---------|-------|--------|--------|
| MAH REC QH | 2759. C | LPHAT L3 OPH NB | *.0000 .7603 .0665 1113 | CDP | 2.9854 .7547 .0550 1047 .0551 | | | | | MAB REC CH | 2777. | ALPHAT CLP CUPB CMB | 4.0000 .6588 .0632 0892 | | 5.1254 .6365 .0531 0854 .0649 | | | | |
| MODEL | | | MODEL | | | WAKE RA | | MAKE RA | | MODEL | | | MODEL | | | WARE RA | | MAKE R | |
| DRESSO | | | PRESSURE | | | PRESSUR | | PRESSUR | | PRESSUR | | | PRESSURE | | | PRESSUR | | PRESSU | |
| MUMBER | Cute | 0.9925 | NUMBER | CPTS | PIZPO | NUMBER | CPMR | NUMBER | CAMB | NUMBER | CP18 | | NUMBER | CP18 | PI/PO | NUMBER | CPMB | NUMBER | CPMB |
| | 0.684 | 0.8760 | 41 | -0.153 | 0.6486 | 1 | 0.000 | 41 | 0.090 | 1 | 1.122 | | 41 | -0.121 | 0.6573 | 1 | 0.000 | 41 | 0.061 |
| | -0.178 | 0.6420 | 4.5 | -0.361 | 0.5927 | | 0.000 | 43 | 0.031 | , | -0.163 | | 43 | -0.225 | 0.6293 | 2 | 0.000 | 42 | 0.040 |
| | -0.899 | 0.4621 | 44 | -0.464 | 0.5646 | | 0.000 | 44 | 0.017 | | -0.163 | | 44 | -0.503 | 0.5540 | | 0.000 | 45 | 0.026 |
| . 5 | -1.332 | 0.5302 | 45 | -0.533 | 0.5462 | 5 | 0.000 | 45 | 0.010 | 5 | -1.320 | | 95 | -0.573 | 0.5352 | | 0.000 | 45 | 0.015 |
| 6 | -1.405 | 0.3112 | 46 | -0.514 | 0.5512 | 6 | 0.000 | 46 | 0.003 | 6 | -1.390 | | 46 | -0.561 | 0.5384 | | 0.000 | 46 | 0.003 |
| 7 | -1.464 | 0.2946 | 47 | -0.442 | 0.5708 | 7 | 0.004 | 47 | 0.001 | 7 | -1,455 | | 47 | -0.484 | 0.5591 | 7 | 0.006 | 47 | 0.002 |
| * | -1.485 | 0.2095 | 48 | -0.415 | 0.5780 | | 0.009 | 48 | 0.000 | | -1,485 | 0.2887 | 48 | -0.592 | 0.5301 | | 0.011 | 46 | 0.001 |
| 9 | -1.469 | 0.2453 | 49 | -0.364 | 0.5919 | 9 | 0.015 | 49 | 0.000 | 9 | -1.481 | | 49 | -0.380 | 0.5874 | 9 | 0.019 | 49 | 0.001 |
| 10 | -1.437 | 0.3019 | 50 | -0.302 | 0.6085 | 1.0 | 0.024 | 50 | 0.000 | 10 | -1.441 | | 50 | -0.523 | 0.6027 | 10 | 0.030 | 50 | -0.000 |
| 12 | -1.412 | 0.3149 | 51 | -0.261 | 0.6196 | 11 | 0.034 | 51 | 0.000 | 11 | -1.411 | | 51 | -0.281 | 0.6141 | 11 | 0.041 | 51 | 0.000 |
| 15 | -1.376 | 0.3144 | 52 | -0.207 | 0.6541 | 12 | 0.040 | 52 | 0.000 | 12 | -1.391 | | 52 | -0.256 | 0.6284 | 12 | 0.048 | 52 | -0.000 |
| 14 | -1, 567 | 0.3208 | 59 | -0.088 | 0.5663 | 14 | 0.051 | 54 | 0.000 | 15 | -1.380 | | 55 | -0.193 | 0.6578 | 13 | 0.069 | 53 | 0.000 |
| 15 | -1,466 | 0.3214 | 55 | 0.021 | 0.6957 | 15 | 0.058 | 55 | 0.000 | 15 | -1.582 | | 55 | -0.104 | 0.6906 | 15 | 0.081 | 55 | 0.000 |
| 16 | -1.369 | 0.5204 | 26 | 0.299 | 0.7708 | 16 | 0.062 | 56 | 0.000 | 16 | -1.3A2 | | 56 | 0.278 | 0.7649 | 16 | 0.117 | 56 | 0.000 |
| 17 | -1.351 | 0.5252 | 57 | 0.716 | 0.8635 | 17 | 0.067 | 57 | 0.000 | 17 | -1.285 | | 57 | 0.705 | 0.6803 | 17 | 0.139 | 57 | 0.000 |
| 1.6 | -1.511 | 0.5561 | 58 | 1.070 | 0.9789 | 19 | 0.078 | 58 | 0.000 | 14 | -1,191 | | 58 | 1.066 | 0.9780 | 10 | 0.163 | 58 | 0.000 |
| 19 | -1.502 | 9.3365 | | | | 19 | 0.101 | 59 | 0.000 | 19 | -0.628 | 0.5203 | | | C. CORE | 19 | 0.206 | 59 | 0.000 |
| 5.0 | -1.155 | 0.5835 | | | | 50 | 0.117 | 60 | 0.000 | 20 | -0.601 | 0.5276 | | | | 20 | 0.232 | 60 | 0.000 |
| 51 | -0.688 | 0.5042 | | | | 51 | 0.139 | 61 | 0.000 | 21 | -0.530 | | | | | 21 | 0.247 | 61 | 0.000 |
| 55 | -0.500 | 0.5551 | | | | 55 | 0.163 | 62 | 0.000 | 22 | -0.466 | | | | | 22 | 0.268 | 62 | 0.000 |
| 24 | -0.386 | 0.5858 | | | | 23 | 0.192 | 63 | 0.000 | 2.3 | -0.422 | | | | | 23 | 0.305 | 63 | 0.000 |
| 25 | -0.224 | 0.6297 | | | | 25 | 0.216 | 65 | 0.000 | 24 | -0.34A | | | | | 24 | 0.320 | 64 | 0.000 |
| 26 | -0.175 | 0.6429 | | | | 26 | 0.277 | 66 | 0.000 | 25 | -0.313 | | | | | 25 | 0.340 | 65 | 0.000 |
| 27 | -0.139 | 0.6525 | | | | 27 | 0.301 | 67 | 0.000 | 27 | -0.212 | | | | | 26 | 0.357 | 66 | 0.000 |
| 28 | -0.092 | 0.6652 | | | | 28 | 0.326 | 68 | 0,000 | 24 | -0.194 | | | | | 28 | 0.367 | 68 | 0.000 |
| 29 | -0.069 | 0.6714 | | | | 29 | 0.345 | 69 | 0.000 | 29 | -0.167 | | | | | 29 | 0.409 | 69 | 0.000 |
| 50 | -0.049 | 0.6767 | | | | 50 | 0.372 | | | 50 | -0.128 | | | | | 30 | 0.406 | - | |
| 51 | 0.098 | 0.7165 | | | | 51 | 0.374 | | | 51 | 0,021 | 0.6957 | | | | 31 | 0.398 | | |
| 32 | 0.245 | 0.7562 | | | | 32 | 0.377 | | | 32 | 0.171 | 9.7361 | | | | 32 | 0.398 | | |
| 34 | 0.334 | 6.7801 | | | | 3.3 | 0.377 | | | 3.5 | 0.260 | | | | | 55 | 0.374 | | |
| 35 | 0.355 | 0.7860 | | | | 35 | 0.355 | | | 34 | 0.294 | | | | | 34 | 0.333 | | |
| 36 | 0.340 | 0.7826 | | | | 36 | 0.306 | | | 35 | 0.291 | | | | | 35 | 0.304 | | |
| 57 | 0.345 | 0.7063 | | | | 37 | 0.263 | | | 36 37 | 0.263 | | | | | 36 | 0.274 | | |
| 58 | 0.202 | 0.7447 | | | | 58 | 0.212 | | | 36 | 0.214 | | | | | 56 | 0.220 | | |
| 39 | 0.125 | 0.7744 | | | | 39 | 0.176 | | | 39 | 0.001 | | | | | 59 | 0.140 | | |
| 40 | 0.037 | 5.7000 | | | | 40 | 0.125 | | | 40 | -6,013 | | | | | 40 | 0.095 | | |

TABLE 4.5 Aerodynamic test data (concluded)

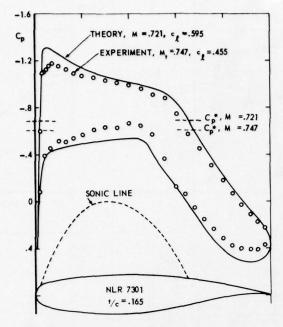
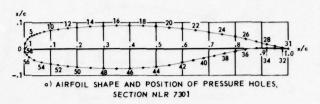


Fig. 4.1 Airfoil shape and design pressure distribution



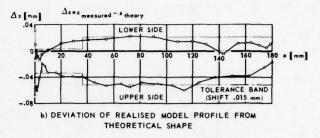


Fig. 4.2 Model shape and position of pressure holes

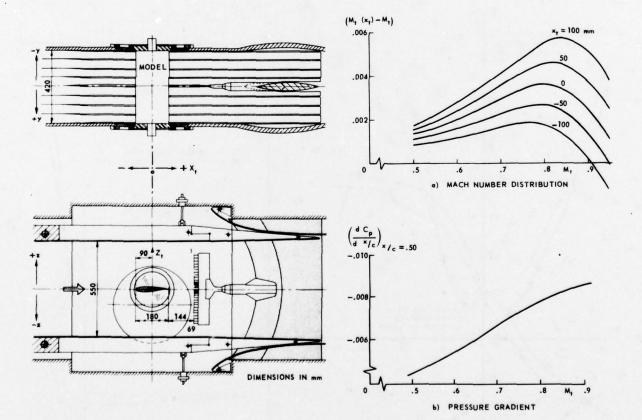


Fig. 4.3 Model installation in the transonic test section of the NLR pilot tunnel

Fig. 4.4 NLR pilot tunnel empty test section calibration data

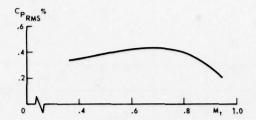


Fig. 4.5 Noise level in NLR pilot tunnel measured in stream

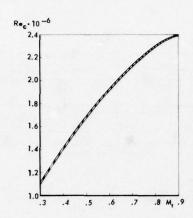


Fig. 4.6 Reynolds number based on chord lenght as function of Mach number

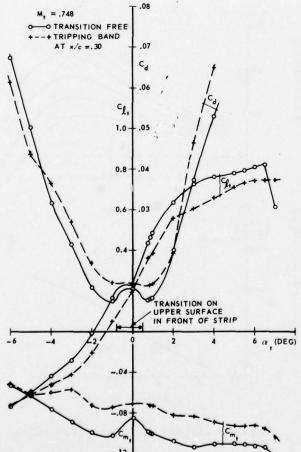
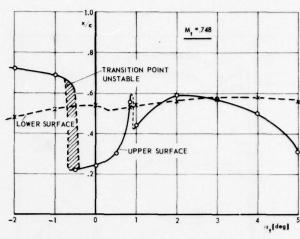


Fig. 4.8 Lift, drag and pitching moment as a funtion of angle of attack at M = .748



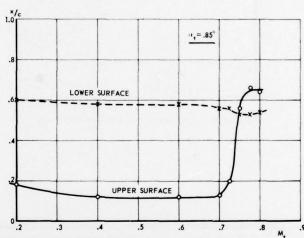


Fig. 4.7 Location of natural transition

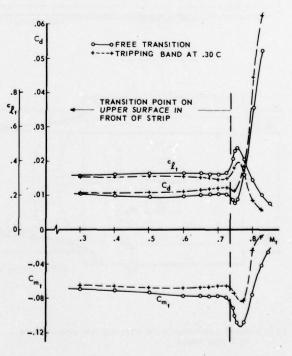


Fig. 4.9 Lift, drag and pitching moment as a funtion of Mach number at $\alpha_{\rm f}$ = .85°

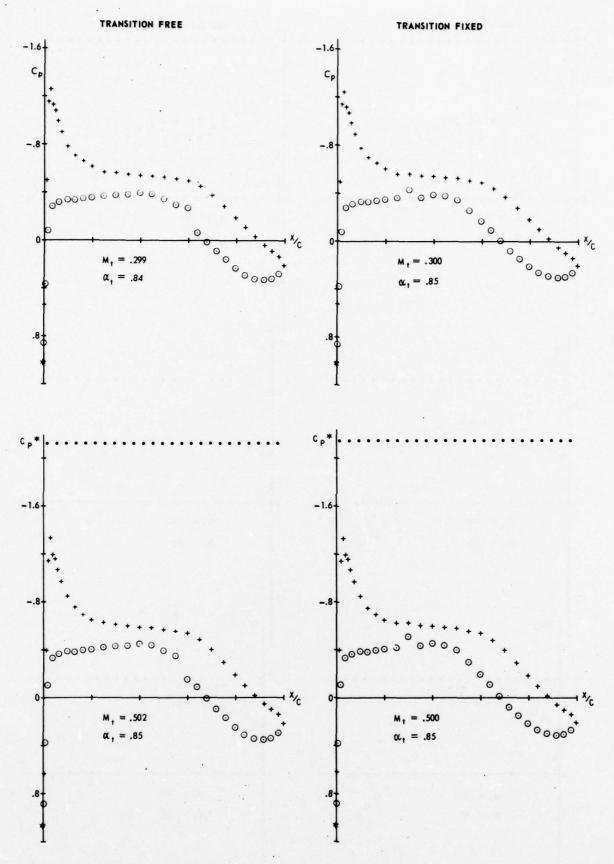
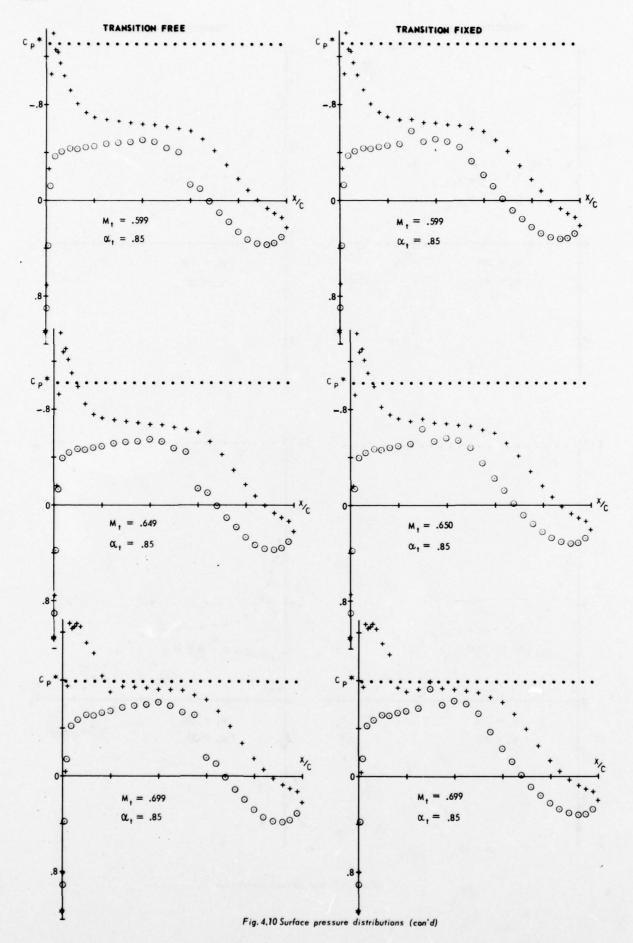
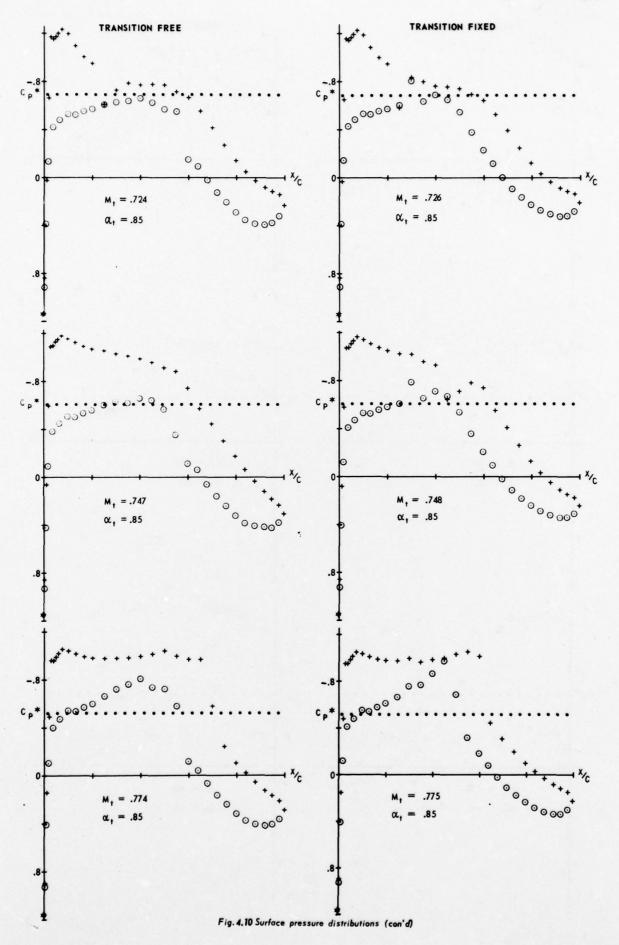
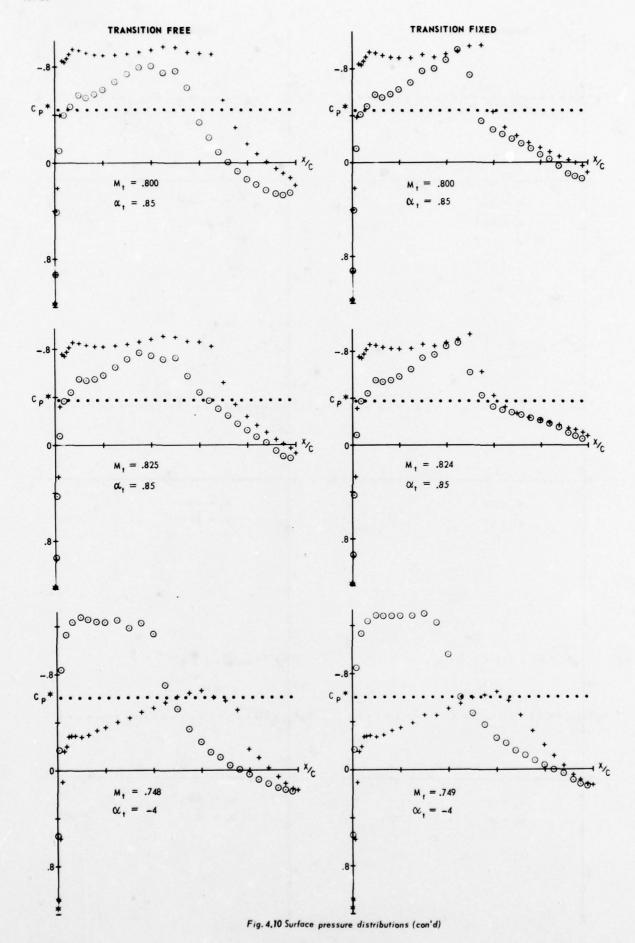
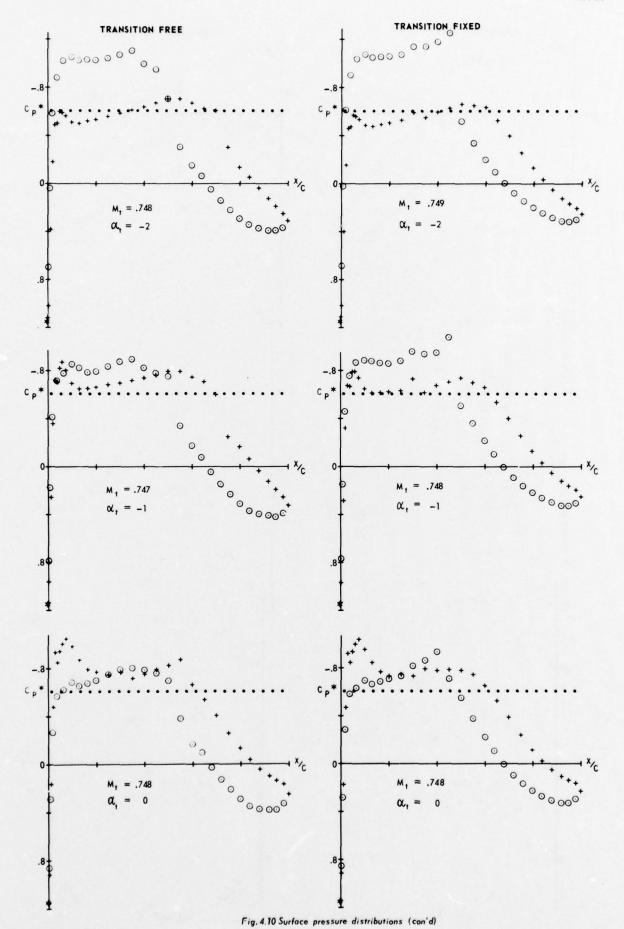


Fig. 4.10 Surface pressure distributions









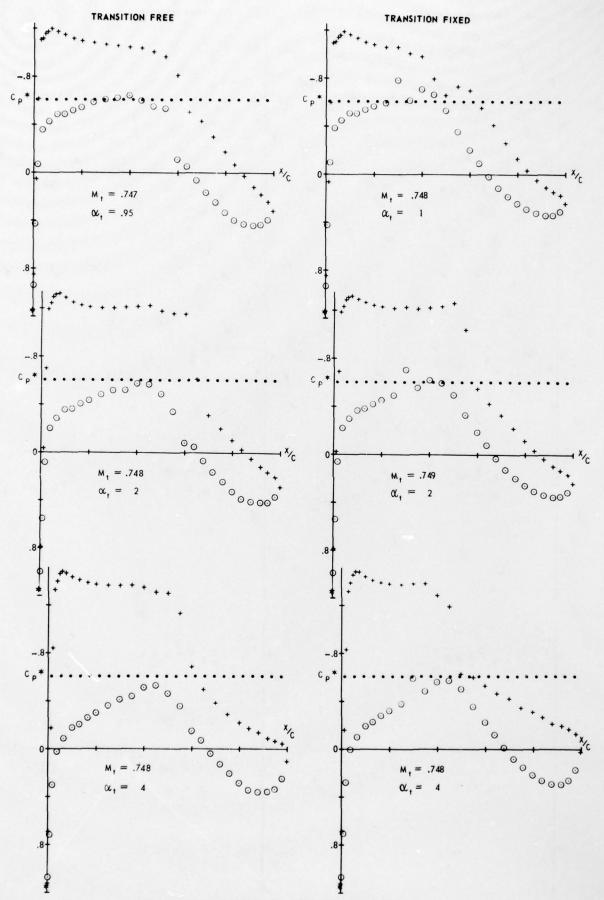


Fig 4.10 Surface pressure distributions (concluded)

5. Airfoil SKF 1.1 with Maneuver Flap

E. Stanewsky and J.J. Thibert

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt and

Office National d'Études et de Recherches Aérospatiales

5.1 Introduction

This data set contains experimental results for the supercritical airfoil SKF 1.1 with deflected maneuver flap obtained in the wind tunnels ONERA S3 Modane and DFVLR 1x1 Meter with the same model. Included are results for

- the Configuration 5 which showed the best performance of the six configurations investigated (Figure 5.2),
- the Configuration 4 which differs from Configuration 5 in the slot width between flap and airfoil and
- the airfoil with retracted maneuver flap (basic airfoil). Here, only a few results are shown in order to demonstrate the sensitivity of this airfoil to changes in Reynolds number and to transition fixing.

Freestream conditions (Table 5.5) include angle of attack variations at $M_{\infty} = 0.70$ and $M_{\infty} = 0.76$ and a Mach number variation at $\alpha_g = 2^{\circ}$ (ONERA-tests) and $\alpha_g = 3^{\circ}$ (DFVLR-tests). The ONERA-data contain in addition to the results obtained in the perforated test section two test cases for the test section with all four walls closed.

The data presented here are not corrected for wall constraints. Wall interference effects are reduced by the use of the ventilated test section walls; however, the test sections of both tunnels are too open so that the data are not interference-free¹⁾. Semi-empirical correction procedures are given in Section 6.2 of the data set. These allow an estimate of the effective freestream conditions; however, it is uncertain whether the freestream conditions thus determined and the corresponding data truly represent a free-air, i.e., no constraint, state (also see Chapter 2 of the report).

The majority of the DFVLR-tests was carried out at $\text{Re} \approx 2.3 \cdot 10^6$ and free transition. Under these circumstances transition generally occurs due to strong adverse pressure gradients; the transition location can, therefore, in most instances be identified from the pressure distributions. At the Reynolds number of the ONERA-tests ($\text{Re} \approx 7.7 \cdot 10^6$) transition is generally triggered close to the leading edge due to disturbances emanating from the pressure orifices.

The effect of increasing Reynolds number and of transition fixing on the flow about the basic airfoil is demonstrated in Figures 5.7/5.8. Changes - besides being small and negative (drag increase!) - are mainly caused by an upstream movement of the transition point when increasing the Reynolds number or fixing transition upstream of the point where it would occur naturally, as is the case here, and the corresponding thickening of the boundary layer. Differences between the ONERA - and DFVLR - data - and this applies to nearly all results presented in this data set - are mainly due to differences in the wall boundary conditions (effective angle of attack) as can be seen by comparing results at equal lift coefficients.

¹⁾The DFVLR 1x1 Meter Tunnel has a slanted-hole perforation with an open area ratio of 6%. This corresponds to an open area ratio of about 20% for a test section with normal holes. The normal-hole perforation of the S3 Modane is 9.7% open. The data (see, for instance, Figure 5.9) clearly reflect the difference in open area ratio.

5.2 Data set

1. Airfoil

- 1.1 Airfoil designation
- 1.2 Type of airfoil
 - 1.2.1. airfoil geometry

nose radius maximum thickness base thickness

1.2.2. design condition

- design pressure distribution
- 1.3. Additional remarks
- 1.4. References on airfoil

SKF 1.11)

Supercritical airfoil with maneuver flap. Basic airfoil designed by a modified Murman/Cole/Krupp method. Shockfree design, moderate rear loading.

- t/c = 12.07 % at 36 % c Table 5.1 and Figures 5.1 and 5.2
- $M_{\infty} = 0.769$ $c_{L} = 0.532$ Basic airfoil $\alpha = 0.750$
- Table 5.4 and Fig. 5.3
- References on design method: [1], [2]
 - [3], [4]

2. Model geometry

- 2.1. Chord length
- 2.2. Span
- 2.3. Actual model coordinates and accuracy
- 2.4. Maximum thickness
- 2.5. Base thickness

c = 0.20 m for the basic airfoil

- ① b = 1.0 m ② b = 0.56 m
- Table 5.2 and Figure 5.1

 $t/c \approx 12.03\%$ Basic airfoil $t_{\rm TE}/c = 0.5\%$

3. Wind tunnel

- 3.1. Designation
- 3.2. Type of tunnel
 - 3.2.1. stagnation pressure
 - 3.2.2. stagnation temperature
 - 3.2.3. humidity/dew point
- 3.3. Test section

- ① DFVLR 1x1 Meter Transonic Tunnel ② S3 Modane (S3MA)
- 1 Continuous, closed circuit 2 Blow down
- ① Variable between 0.4 and 1.0 bar
 ② Variable between 1.0 and 4.0 bar
- ① ≈ 305 K ② Varies slightly during blow down: 273 K $\pm 4^{\circ}$
- ① ≈ 240 K 2 Air is dried but dew point is not known.
- 1 Square 2 Rectangular

The same model was tested in the DFVLR 1x1 Meter Transonic Tunnel and the ONERA S3 Modane. On subsequent pages (refers to the DFVLR tunnel, 2 to the S3 Modane (S3MA) $^{2)}$ c = 200 mm is used to reduce all data

- 3.3.1. dimensions
- 3.3.2. type of walls
- 3.4. Flow field (empty test section)
 - 3.4.1. reference static pressure
 - 3.4.2. flow angularity
 - 3.4.3. Mach number distribution
 - 3.4.4. pressure gradient

- 3.4.5. turbulence/noise level
- 3.4.6. side wall boundary layer
- 3.5. Additional remarks
- 3.6. References on wind tunnel

4. Tests

- 4.1. Type of measurements
- 4.2. Tunnel/model dimensions
 - 4.2.1. height/chord ratio
 - 4.2.2. width/chord ratio
- 4.3. Flow conditions included in present data base
 - 4.3.1. angle of attack
 - 4.3.2. Mach number

- ① 1m x 1m ② 0.56 m x 0.78 m
- 1) 6 % open perforated (fixed porosity) walls with holes slanted 30° to the flow direction(Fig. 5.4)
- 2 9.7 % open perforated top and bottom walls, solid side walls, holes normal to flow direction (Fig. 5.4)
- ① Plenum chamber pressure
- Side wall pressure orifice 8.19 chords upstream
- of the model

 1 ± 0.05°

 2 (2) < 0.05°

| ① | M _∞ ¹⁾ | 0.50 | 0.80 | 1.0 | 1.2 |
|----------|------------------------------|--------|-------|-------|-------|
| in x: | ΔΜ | 0.005 | 0.003 | 0.006 | 0.015 |
| in z: | ΛM | | 0.003 | | |
| 6/M6 | x/c) | 0.0037 | - | - | - |

- 1) Figure 5.5a
- ② Flaps are adjusted to give zero pressure gradient for the empty test section (Figure 5.5b)
- ① Low noise level $(\sqrt{n} \cdot F(n) < 0.001)$. Measured on body of revolution NACA RM 12. Low turbulence level (measurements are in progress)
- ② Figure 5.6
- ① $2 \delta/b \approx 0.18$ at $M_{\infty} = 0.76$, measured at x/c = 0and p = 1 bar
- ② $2 \delta/b = 0.21$ at $M_{\infty} = 0.40$ 0.18 at $M_{\infty}^{\infty} = 0.60$ 0.15 at $M_{\infty}^{\infty} = 0.80$

measured at x/c = 0.25 and $p_0 = 1$ bar

Reference on noise level: [5]

[6], [7]

- Surface pressure distributions
- Wake rake
- Shadograph pictures (ONERA-tests)
- Upper and lower wall pressure distributions (ONERA-tests)
- ① H/c = 5 ② H/c = 3.9 ① b/c = 5 ② b/c = 2.8 Basic airfoil

Table 5.5

4.3.3. Reynolds number

4.3.4. transition

- position of free transition

- transition fixing

4.3.5. temperature equilibrium

4.5. References on tests

5. Instrumentation

5.1. Surface pressure measurements

5.1.1. pressure holes

- size

- spanwise station(s)

- chordwise positions

5.1.2. type of transducers and scanning devices

5.2. Wake measurements

5.2.1. type/size of instrument(s)

5.2.2. streamwise position(s)

5.2.3. type of transducers and scanning devices

5.5. Flow visualisation

5.5.1. flow field

① Re $\approx 2.2 \cdot 10^6$ ② Re $\approx 7 \cdot 10^6$

Free

Was not determined. ① Transition occurs generally due to adverse pressure gradients.
② Transition occurs close to leading edge, since relatively high Reynolds number.

See Fig. 5.7/5.8 for effect of Reynolds number and transition fixing (basic airfoil only)

① Yes ② See 3.2.2.

[8, 9, 10]

Diameter = 0.5 mm (d/c = 0.0025)

- Center line orifices were staggered in the nose region $\pm\ 7.5\ mm$

- 16 orifices were located in spanwise direction at x/c = 0.50 on the upper surface (Table 5.3)

Table 5.3 and Figure 5.1

① CEC and Statham differential pressure transducers plus Scanivalves Range: ± 10 psi Accuracy: ± 0.40 % FS

Statham differential pressure transducer Range: ± 25 psi Accuracy: ± 0.12 % FS

① Wake rake consisting of 47 Pitot probes and 14 static probes. Pitot probes are spaced 2.5 mm apart in the center region (Figure 5.4a)

ID/OD = 0.4/1mm

2 chords downstream of trailing edge

CEC and Statham differential pressure transducers plus Scanivalves Range: ± 5 psi Accuracy: ± 0.3 % FS

2 - Figure 5.4b and c- ID/OD = 0.5/1.2 mm

- 1 chord downstream of trailing edge

- Statham differential pressure transducer Range: ± 10 psi Accuracy: ± 0.20 % FS

Shadowgraph pictures (ONERA-tests) [11]. Not included in data set.

6. Data

6.1. Accuracy (wall interference excluded)

6.1.1. angle of attack setting

① ± 0.02°

2 ± 0.02°

6.1.2. free stream Mach number

setting

① \pm 0.001

② ± 0.002

- variation during one pressure scan 1 ± 0.001

2 Not known

- 6.1.3. pressure coefficients
- 6.1.4. aerodynamic coefficients
- 6.1.6. repeatability

- 6.2. Wall interference corrections
 - 6.2.1. angle of attack
 - 6.2.2. blockage (solid/wake)
 - 6.2.3. streamline curvature (lift)

- 6.2.5. remarks
- 6.2.6. references on wall interference

- ① $\Delta c_p \approx \pm 1\%$ assuming worst possible combinanation of errors including an error of $\Delta M_{\infty} = \pm 0.002$, evaluated at $M_{\infty} = 0.76$ and max. $|^{C}p|$ Obtained by integrating pressure distributions
- ② $\Delta c_L = \pm 0.002$ $\Delta c_D = \pm 0.0003$ $\Delta c_m = \pm 0.0003$
- ① Average over the range of M_{∞} and α investigated:

$$\Delta c_{p \ 0.5c} \approx \pm \ 0.40 \%, \quad \Delta c_{L} \approx \pm \ 0.3 \%$$

$$\Delta c_D \approx \pm 1.2\%$$
, $\Delta c_m \approx \pm 0.40\%$

②
$$M_{\infty} > 0.5$$

 $\Delta c_{L} = \pm 0.005$ $\Delta c_{D} = \pm 0.0002$
 $\Delta c_{m} = \pm 0.001$

The data included are uncorrected.

The effective angle of attack can be approximated by:

② at
$$M_{\infty} \approx 0.75$$
 and $\alpha_g \approx 2^\circ$: $\Delta \alpha \approx 0.5^\circ$
 $(\alpha_{\text{corrected}} = \alpha_g + \Delta \alpha)$

① Not yet well established, but can be approximated by

$$\Delta M_{\infty} = -(1+0.2 M_{\infty}^{2}) \cdot M_{\infty} \cdot (0.003)$$
 for $c_{L} = 0$

② at
$$M_{\infty} \approx 0.75 : \Delta M \approx 0.0016$$

$$(M_{\infty} + \Delta M_{\infty})$$

① Can be approximated by:

$$\Delta c_{L} = 0.0126 \quad \frac{1}{\beta^2} \cdot c_{L}$$

$$\Delta c_{\mathbf{m}} = -\frac{1}{4} \Delta c_{\mathbf{L}}$$

② at
$$M_{\infty} \approx 0.75$$
 and $\alpha_g \approx 2^{\circ}$:

$$\Delta c_L \approx 0.002$$
 $\Delta c_m \approx 0.0006$

$$(c_{i_{corrected}} = c_{i} + \Delta c_{i})$$

- ① Correction factors were obtained empirically by testing different size models of the same airfoil
- Porosity factors were determined by matching c_{La} for tests with solid and porous test section walls. The data obtained with solid walls were corrected using the method of [12]
- @ [12]

6.3. Presentation of data

6.3.1. aerodynamic coefficients

- Basic airfoil: Tables 5.6/5.7, Figure 5.7 (Effect of Reynolds number and transition fixing only)
- Airfoil with extended maneuver flap: Tables 5.6/5.7, Figures 5.9/5.10

6.3.2. surface pressures

- Basic Airfoil: Table 5.8, Figure 5.8 (Effect of Reynolds number and transition fixing only)
- Airfoil with extended maneuver flap: Tables 5.8/5.9, Figures 5.12/5.13
- Comparison ONERA-DFVLR: Figure 5.11
- Wall pressure distributions (ONERA-tests): Table 5.9
- 6.3.4. wall interference corrections included?

No

6.3.5. corrections for model deflection?

No

6.3.6. Empty test section calibration taken into account?

Yes

6.4. Were tests carried out in different facilities on the current aerofoil ? If so, what facilities. Are data included in the present data base?

Data set includes results from ONERA-S3MAand DFVLR-1x1 Meter Transonic Tunnel-tests.

6.5. To be contacted for further information on tests

- ① E. Stanewsky DFVLR-AVA Göttingen 10 Bunsenstraße D-3400 Göttingen
- ② J.J. Thibert ONERA 92320 Chatillon (France)

7. References

[1] KÜHL, P. ZIMMER, H. The design of airfoils for transport aircraft with improved high speed characteristics . DORNIER GmbH, Report $74/16~\mathrm{B}$, 1974

[2] STANEWSKY, E. ZIMMER, H.

Development and wind tunnel tests of three supercritical airfoils for transport aircraft Z. Flugwiss. 23 (1975), Heft 7/8

[3] ZIMMER, H.

Aerodynamic design of the SKF-airfoil DORNIER GmbH, Note BF 10-0242/

[4] WELTE, D.

Definition of thickness and design conditions for the SKF-airfoil DORNIER GmbH, Note BF 10-0180

[5] HOLST, H. GROSCHE, F.R. BINDER, B. Measurement of pressure fluctuations in the Transonic Wind Tunnel of the DFVLR-AVA Göttingen DFVLR-AVA Report IB 75 A 17, 1975

[6] HOTTNER, TH. LORENZ-MEYER, W. The transonic wind tunnel of the Aerodynamische Versuchsanstalt Göttingen
DGLR-Yearbook 1968, pp 235-244

[7]

Note technique ONERA No. 166 (1970) and ONERA No. 203 (1972)

[8] STANEWSKY, E. MÜLLER, H.

Wind tunnel investigation of a two-dimensional supercritical wing with maneuver flap and slat
DFVLR-AVA Report IB 251 75 A 35 and IB 251 75 A 35a

[9] MOIROUD, H.

Essais à S3MA d'un profil Dornier en écoulement plan ONERA P.V. No. 1/3207 ANG (1976)

[10] CONSTANT, A.M.

Etudes en courant plan relatives au project Dornier de voilure supercritique ONERA R. T. No. $8/3207~\mathrm{AN}$

[11] LÜCK,

Shadograph pictures of the ONERA-tests DORNIER GmbH, Note BF 60-0425

[12] MOKRY, M.

Higher-order-theory of two-dimensional subsonic wall interference in a perforated wall wind tunnel

National Research Council Report LR 553, 1971

8. List of symbols

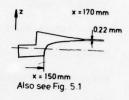
| a | speed of sound | Subsci | ripts |
|---------------------|--|--------|-----------------------|
| b | span, tunnel width | œ | freestream conditions |
| c,L | model chord | K | maneuver flap |
| c _p | pressure coefficient [(p-p $_{\infty}$)/q $_{\infty}$] | TE | trailing edge |
| c _p * | pressure coefficient at ML = 1 | US | upper surface |
| c _L | lift coefficient | LS | lower surface |
| c _m | pitching moment coefficient (based on 0.25c) | | |
| c _D | drag coefficient | | |
| f | frequency of pressure fluctuation | | |
| F(n) | frequency function $ \int_{0}^{\infty} F(n) \cdot dn = c \frac{2}{p} RMS $ | | |
| n | reduced frequency, $f \cdot c/V_{\infty}$ | | |
| M _{oo} , M | freestream Mach number $\left[a_{\infty}/V_{\infty}\right]$ | | |
| M_{L} | local Mach number | | |
| Н | tunnel height | | |
| q | dynamic pressure | | |
| Re, Rec | Reynolds number, $\rho_{\infty} V_{\infty} \cdot c/\mu_{\infty}$ | | |
| t | maximum thickness | | |
| v _∞ | freestream velocity | | |
| x y z | coordinates (see Fig. 5.1) | | |
| ag, a | geometric angle of attack | | |
| β | $\sqrt{1-M_{\infty}^2}$ | | |
| 8 | maximum thickness, t/c boundary layer thickness(sidewall) | | |
| P | density | | |
| μ | dynamic viscosity | | |

Table 5.1 Design coordinates for the airfoil SKF 1.1 including maneuver flap Basic airfoil - Upper surface

| l'ote: | For actua | l model co | ordinat | es see Tab | le 5.2 | | | |
|----------|----------------------|--------------------|------------|----------------------|--------------------|------------|------------------|------------------------|
| No. | x (mm) | z (mm) | No. | -x (mm) | z (mm) | No. | x (mm) | z (mm) |
| 1 | 0.000 | 0.179 | 91 | 115, 022 | 12.994 | 53 | 83.033 | - 10, 254 |
| 2 | 0.001 | 0.348 0.517 | 92 | 116.738 | 12.899 12.794 | 54 | 81.033 | - 10, 234 |
| 4 | 0.028 | 0.685 | 93 94 | 118, 453 120, 168 | 12.681 | 55 | 79.033 | - 10, 396 |
| 5 | 0.053 | 0.852 | 95 | 121.881 | 12,558 | 56 57 | 77.319 75.605 | - 10.444 - 10.484 |
| 6 | 0.094 | 1.051 | 96 | 123, 595 125, 307 | 12.427 | 58 | 73.892 | - 10, 515 |
| 8 | 0.207 | 1.440 | 98 | 127.019 | 12.139 | 59 60 | 72.178 | - 10.538 - 10.552 |
| 9 | 0.279 | 1.630 | 99 | 129.021 | 11,954 | 61 | 70.464 68.749 | - 10. 558 |
| 10 | 0.361 0.452 | 1.815 1.995 | 100 | 131, 022 133, 022 | 11,759 11,553 | 62 | 67.035 | - 10.554 |
| 12 | 0.553 | 2.171 | 102 | 135, 021 | 11.337 | 63 64 | 65.321 63.607 | - 10, 542 - 10, 521 |
| 13 14 | 0.693 0.845 | 2.386 2.593 | 103 | 137.019 | 11.112 | 65 | 61.893 | - 10. 492 |
| 15 | 1.009 | 2.791 | 104 | 139, 016 141, 019 | 10.877 10.633 | 66 | 60.179 | - 10, 453 |
| 16 | 1.182 | 2.981 | 106 | 143.020 | 10.378 | 67 68 | 58.465 56.752 | - 10.407 - 10.351 |
| 17 18 | 1,364 1,553 | 3.164 3.339 | 107 | 145. 020 | 10.115 | 69 | 55.039 | - 10. 288 |
| 19 | 1.876 | 3.612 | 108 | 147.019 | 9.842 | 70 | 53.038 | - 10, 205 |
| 20 | 2.210 | 3.870 | 109 | 149.016 151.013 | 9.560 9.268 | 71 72 | 51.038 49.038 | - 10, 111 - 10, 007 |
| 21 | 2.553 3.048 | 4.117 4.450 | 111 | 153.016 | 8.966 | 73 | 47.039 | - 9.894 |
| 23 | 3, 553 | 4.768 | 112 | 155.017 | 8.653 | 74 | 45.040 | - 9.771 |
| 24 | 4.046 | 5.063 | 113 | 157.018 159.017 | 8.332 8.001 | 75 76 | 43.041 41.325 | - 9.638 - 9.516 |
| 25 | 4.546 | 5.346 | 115 | 161.014 | 7.662 | 77 | 39.610 | - 9.386 |
| 26 27 | 5.052 5.545 | 5.618 5.868 | 116 | 163.010 | 7.314 | 78 | 37.895 | - 9. 246 |
| 28 | 6.043 | 6.109 | 117 | 165, 412 167, 813 | 6.886 6.447 | 79 80 | 36.181 34.468 | - 9.097 - 8.938 |
| 29 | 6.545 | 6.341 6.564 | 119 | 170.212 | 5.999 | 81 | 32.756 | - 8. 767 |
| 30 31 | 7.052 7.670 | 6.823 | 120 | 172.610 | 5.543 | 82 | 31.045 | - 8.586 |
| 32 | 8.293 | 7.073 | 121 | 175.006 179.506 | 5.081 4.198 | 83 84 | 29.444 | - 8.407 - 8.219 |
| 33 | 8.920 | 7.311 | 123 | 184.004 | 3.304 | 85 | 27.843 26.244 | - 8. 023 |
| 34 35 | \$ 551 10,243 | 7.539 | 124 | 190,002 | 2.102 | 86 | 24.645 | - 7.818 |
| 36 | 10.940 | 8.003 | 125 126 | 195, 501 200, 000 | 0.989 | 87 88 | 23.048 21.671 | - 7.606 - 7.417 |
| 37 | 11,640 | 8.217 | | | | 89 | 20. 296 | - 7. 220 |
| 38 | 12.344 13.050 | 8.421 8.615 | | | | 90 | 18,922 | - 7.015 |
| 40 | 13.945 | 8.848 | Lo | wer sur | face | 91 | 17.549 | - 6.801 |
| 41 | 14.842 | 9.068 | L | wer sur | race | 92 | 16.047 14.548 | - 6.554 - 6.295 |
| 42 43 | 15.742 16.644 | 9.276 9.473 | 1 | 200.000 | - 0.945 | 94 | 13.050 | - 6.023 |
| 44 | 17.549 | 9.660 | 2 | 197.751 | - 0.847 | 95 | 12.173 | - 5.855 |
| 45 | 18.645 | 9.874 | 3 4 | 195.501 193.668 | - 0.762 - 0.703 | 96 | 11.297 10,423 | - 5.681 - 5.499 |
| 46 | 19.742 | 10.076 | 5 | 191.836 | - 0.656 | 98 | 9.550 | - 5.307 |
| 47 | 20.842 | 10.266 | 6 | 190.003 | - 0.620 | 100 | 8.714 | - 5.110 |
| 48 49 | 21,944 23,048 | 10.466 10.616 | 8 | 188.503 187.003 | - 0.600 - 0.589 | 100 | 7.881 7.052 | - 4.900 - 4.676 |
| 50 | 24,377 | 10.810 | 9 | 185.503 | - 0.587 | 102 | 6.381 | - 4.481 |
| 51 52 | 25,709 27,041 | 10.993 11.165 | 10 | 184.004 | - 0.595 | 103 | 5.714 | - 4.275 - 4.056 |
| 53 | 28.375 | 11, 165 | 11 | 182,718 181,432 | - 0.600 - 0.631 | 104 | 5.052 4.549 | - 3.879 |
| 54 | 29.710 | 11.482 | 13 | 180.146 | - 0.661 | 106 | 4.049 | - 3.693 |
| 55 56 | 31.045 32.756 | 11.628 11.804 | 14 | 178.861 | - 0.699 | 107 | 3.553 3.050 | - 3.498 - 3.286 |
| 57 | 34,468 | 11.967 | 15 16 | 177.576 176.291 | - 0.745 - 0.800 | 109 | 2.553 | - 3.260 |
| 58 | 36.181 | 12.119 | 17 | 175.006 | - 0.864 | 110 | 2.296 | - 2.933 |
| 59 60 | 37,895 39,610 | 12.261 12.394 | 18 | 173.504 | - 0.949 | 111 | 2.043 1.795 | - 2.800 - 2.656 |
| 61 | 41.325 | 12.517 | 19 | 172.003 170.502 | - 1.046 - 1.155 | 113 | 1.553 | - 2.502 |
| 62 | 43.041 | 12.632 | 21 | 169.002 | - 1,273 | 114 | 1.364 | - 2.367 |
| 63 64 | 45.040 47.039 | 12.756 12.870 | 22 | 167.503 | - 1,402 | 115 | 1,181 | - 2, 223 - 2, 069 |
| 65 | 49.038 | 12.975 | 23 | 166.005 164.507 | - 1.539 - 1.683 | 117 | 0.844 | - 1.905 |
| 66 | 51.038 | 13.071 | 25 | 163, 010 | - 1.835 | 118 | 0.692 | - 1.731 |
| 67 68 | 53, 038 55, 039 | 13, 159 13, 239 | 26 | 160.608 | - 2.090 | 119 120 | 0.553 0.461 | - 1.548 - 1.408 |
| 69 | 57.438 | 13.325 | 27 28 | 158,208 155,809 | - 2.356 - 2.633 | 121 | 0.376 | - 1.264 |
| 70 | 59.837 | 13.402 | 28 | 153, 410 | - 2.633 | 122 | 0.300 | - 1,116 |
| 71 72 | 62,236 64,635 | 13.469 13.526 | 30 | 151.013 | - 3.205 | 123 | 0.232 | - 0.964 - 0.808 |
| 73 | 67.035 | 13.575 | 31 | 145.014 | - 3.944 | 125 | 0.173 | - 0.649 |
| 74 | 70, 034 | 13.624 | 32 | 139,016 127,019 | - 4.698 - 6.220 | 126 | 0.081 | - 0.487 |
| 75 76 | 73, 034 76, 033 | 13,660 13,683 | 34 | 124.021 | - 6.598 | 127 128 | 0.048 | - 0.322 - 0.156 |
| 77 | 79, 033 | 13,695 | 35 | 121.023 118.023 | - 6.971 - 7.336 | 128 | 0.023 | 0.011 |
| 78 | 82.032 | 13.696 | 36 | 115.023 | - 7.336 - 7.688 | | | |
| 79 | 85, 031 | 13.687 | 38 | 113.025 | - 7.915 | | | |
| 80 81 | 88,030 91,029 | 13,669 13,642 | 39 | 111,027 109,028 | - 8, 134 | | | |
| 82 | 94.028 | 13.608 | 40 | 109.028 | - 8.345 - 8.548 | | | |
| 83 | 97.027 | 13,564 | 42 | 105.027 | - 8.743 | | | |
| 84 85 | 100, 026 103, 025 | 13,510 13,444 | 43 | 103, 025 | - 8, 925 | | | |
| 86 | 105,026 | 13.392 | 44 | 101,028 99,029 | - 9.105 - 9.272 | | | |
| 87 | 107.026 | 13.331 | 46 | 97.030 | - 9.430 | | | |
| 88 | 109,026 111,025 | 13, 262 13, 184 | 47 | 95.031 | - 9.578 | | | |
| 90 | 113, 024 | 13.095 | 48 | 93.030 91.029 | - 9.716 - 9.844 | | | |
| | | | 50 | 89.031 | - 9.962 | | | |
| | | | 51 | 87.032 | - 10,070 | | | |
| | | | 52 | 85.033 | - 10, 167 | | | |

Basic airfoil - Inner contour

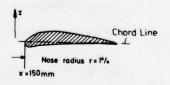
| Nr. | x (mm) | z (mm) |
|-----|--------|--------|
| 1 | 150.00 | - 1.13 |
| 2 | 150.50 | 0.56 |
| 3 | 151.00 | 1.31 |
| 4 | 151,50 | 1.80 |
| 5 | 152.25 | 2.57 |
| 6 | 153.00 | 3.12 |
| 7 | 154.00 | 3.72 |
| 8 | 155.00 | 4.20 |
| 9 | 156.50 | 4.78 |
| 10 | 158.50 | 5.35 |
| 11 | 160.50 | 5.72 |
| 12 | 163.50 | 6.06 |
| 13 | 166.50 | 6.09 |
| 14 | 170.00 | 5.84 |



Note: The coordinates given here are actual model coordinates

Maneuver flap

| Nr. | x (mm) | z _{US} (mm) | LS (mm) |
|-----|--------|----------------------|---------|
| 1 | 150.00 | - 1.13 | - 1.13 |
| 2 | 150.50 | 0.52 | - 2.41 |
| 3 | 151.00 | 1.31 | - 2.81 |
| 4 | 151.50 | 1.88 | - 3.01 |
| 5 | 152.25 | 2.57 | - 3.07 |
| 6 | 153.00 | 3.12 | - 3.00 |
| 7 | 154.00 | 3.72 | - 2.88 |
| 8 | 155.00 | 4.20 | - 2.76 |
| 9 | 156.50 | 4.78 | - 2.59 |
| 10 | 158.50 | 5.35 | - 2.34 |
| 11 | 160.50 | 5.72 | - 2.12 |
| 12 | 163.50 | 6.06 | - 1.80 |
| 13 | 166.50 | 6.09 | - 1.51 |
| 14 | 170.00 | 5.84 | - 1.20 |
| 15 | 172.50 | 5 51 | - 1.01 |
| 16 | 175.00 | 5.08 | - 0.865 |
| 17 | 179.50 | 4.21 | - 0.70 |
| 18 | 184.00 | 3,30 | - 0.956 |
| 19 | 190.00 | 2.10 | - 0.62 |
| 20 | 195.50 | 0.988 | - 0.76 |
| 21 | 200.00 | 0.070 | - 6,946 |



Note: The coordinates given here are actual coordinates. They are based on the chord line of the basic airfoil

Table 5.2 Measured coordinates of the airfoil SKF 1.1 1)

| Upper s | urface | | | Lower s | urface | | |
|-----------------|-----------------|-----------------|---------------------------|----------|-----------------|-----------------|----------------------------|
| x _{US} | z _{US} | z _{US} | Δz _{US} 3 - 2 | *LS | z _{LS} | z _{LS} | Δz _{LS} 9 - 8 |
| | Design | Actual | | | Design | Actual | |
| [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| 0 | 2 | 3 | • | 0 | 8 | 9 | 100 |
| 0.000 | 0.179 | - | - | 0.000 | - | | - |
| 1.009 | 2.791 | 2.794 | 0,003 | 1.008 | - 2.069 | - 2.024 | - 0.045 |
| 2.553 | 4.117 | 4.146 | 0.029 | 2.553 | - 3.060 | - 3, 050 | - 0.010 |
| 4.546 | 5, 346 | 5.326 | 0,020 | 4, 549 | - 3, 879 | - 3.920 | 0, 041 |
| 7.052 | 6.564 | 6.574 | 0.010 | 7,052 | - 4,676 | - 4.708 | 0.032 |
| 10.243 | 7,777 | 7.798 | 0.021 | 10, 423 | - 5.499 | - 5.530 | 0, 031 |
| 15.742 | 9.276 | 9.278 | 0.002 | 14.548 | - 6.295 | - 6, 334 | 0.039 |
| 20.842 | 10.266 | 10.248 | ~ 0.018 | 20.296 | - 7.220 | - 7.264 | 0.044 |
| 25.709 | 10.993 | 10,960 | - 0.033 | 26.244 | - 8.023 | - 8.036 | 0.013 |
| 32.756 | 11.804 | 11,743. | ~ 0.061 | 32.756 | - 8.767 | - 8.702 | - 0.065 |
| 45.040 | 12.756 | 12.766 | 0.010 | 45.040 | - 9.771 | - 9.674 | - 0.097 |
| 55.039 | 13.239 | 13.322 | 0.083 | 55.039 | - 10, 288 | - 10.180 | - 0.108 |
| 67.035 | 13.575 | 13.618 | 0.043 | 67.035 | - 10.542 | - 10.426 | - 0.116 |
| 82.032 | 13.696 | 13.676 | - 0.020 | 83.033 | - 10.254 | - 10.198 | - 0.056 |
| 100.026 | 13,510 | 13.448 | 0.062 | 101,029 | - 9.105 | - 9.098 | - 0.017 |
| 115.022 | 12,994 | 12.850 | - 0.144 | 115.023 | - 7.688 | - 7.670 | - 0.018 |
| 131.022 | 11.759 | 11,734 | - 0.025 | 127, 019 | - 6.220 | - 6,152 | - 0.068 |
| 147.019 | 9.842 | 9.804 | - 0.038 | 145.014 | - 3.944 | - 3,936 | - 0.008 |
| 163.010 | 7.314 | 7.242 | - 0,072 | 163.010 | - 1.835 | - 1.844 | 0.009 |
| 172.610 | 5. 543 | 5.452 | - 0.091 | 172.003 | - 1.046 | - 1,112 | 0,066 |
| 190.002 | 2.102 | 1.996 | - 0.106 | 190,003 | - 0.620 | 0,670 | 0, 050 |
| 200.000 | 0.071 | | | 200,000 | - 0.945 | | |

Note:

For plot of measured error of the manufactured airfoil see Figure 5.1

1) Only basic airfoil model. For maneuver flap see Table 5.1

Table 5.3 Coordinates of the pressure orifices - Basic airfoil

| Upper surface | | | | | | Lower surface | | | | | Spanwise orifices (Upper surface) | | | | | | |
|---------------|-----|--------|--------|---------|---------|---------------|-----|--------|---------|-------------|-----------------------------------|----|-----------|-----|----------|-------|-------|
| | No. | x | z | x/c | z/c | | No. | × | 2. | x /c | 2/c | | No. 1) | × | у | x/c | у/с |
| | | mm | mm | | | | | mm | mm | | | | | mm | mm | | |
| 1 | 1 | 0,00 | 0,18 | 0,0000 | 0,0009 | 1 | 1 | 0,00 | 0,18 | 0,0000 | 0,0009 | 1 | 120 | 100 | 150.0 | 0,500 | 0,750 |
| 2 | 2 | 0,65 | 2.32 | 0.0032 | 0.0116 | 2 | 48 | 0.65 | - 1,68 | 0.0032 | - 0,0084 | 2 | 121 | | 130.0 | | 0,650 |
| 3 | 3 | 1,75 | 3,51 | 0.0087 | 0,0175 | 3 | 47 | 1.40 | - 2,39 | 0.0070 | - 0,0119 | 3 | 122 | 11 | 110.0 | 11 | 0,55 |
| 4 | 4 | 3,10 | 4,48 | 0.0155 | 0.0224 | 4 | 46 | 3.65 | - 3.54 | 0.0182 | - 0.0177 | 4 | 123 | 11 | 90,0 | | 0,450 |
| 5 | 5 | 5,00 | 5, 59 | 0,0250 | 0,0279 | 5 | 45 | 9,75 | - 5,35 | 0.0487 | - 0,0267 | 5 | 124 | | 70,0 | 11 | 0,350 |
| 6 | 6 | 6,90 | 6,50 | 0,0345 | 0,0325 | 6 | 44 | 19,75 | - 7,14 | 0,0987 | - 0,0357 | 6 | 125 | | 50,0 | | 0.25 |
| 7 | 7 | 12,90 | 8,57 | 0,0645 | 0.0428 | 7 | 43 | 30,00 | - 8,47 | 0, 1500 | - 0,0423 | 7 | 126 | | 30,0 | 11 | 0,15 |
| 8 | 8 | 15,95 | 9,32 | 0,0797 | 0,0466 | 8 | 42 | 40,00 | - 9,42 | 0,2000 | - 0.0471 | 8 | 127 | 11 | 10,0 | 11 | 0,05 |
| 9 | 9 | 19,80 | 10,09 | 0,0990 | 0,0504 | 9 | 41 | 49.85 | - 10,05 | 0.2492 | - 0.0502 | 9 | 128 | | - 10,0 | | -0.05 |
| 10 | 10 | 28,00 | 11, 28 | 0,1400 | 0,0564 | 10 | 40 | 69.85 | - 10,56 | 0.3492 | - 0.0528 | 10 | 129 | | - 30.0 | 11 | -0,15 |
| 11 | 11 | 34,00 | 11,92 | 0, 1700 | 0,0596 | 11 | 39 | 89.85 | - 9,91 | 0.4492 | - 0.0495 | 11 | 130 | 11 | - 50.0 | 11 | -0,25 |
| 12 | 12 | 44,00 | 12,62 | 0,2200 | 0.0634 | 12 | 38 | 110,00 | - 8,24 | 0, 5500 | - 0.0412 | 12 | 131 | | - 70,0 | 11 | -0,35 |
| 13 | 13 | 51,90 | 13,11 | 0, 2595 | 0.0655 | 13 | 37 | 129.00 | - 5,97 | 0,6450 | - 0,0298 | 13 | 132 | | - 90.0 | | -0.45 |
| 14 | 14 | 59,90 | 13.40 | 0, 2995 | 0.0670 | 14 | 36 | 150,00 | - 3,33 | 0,7500 | - 0,0166 | 14 | 133 | | -110,0 | 11 | -0,55 |
| 15 | 15 | 67,95 | 13,59 | 0.3397 | 0.0679 | 15 | 35 | 160.00 | - 2,16 | 0,8000 | - 0,0108 | 15 | 134 | | -130.0 | 11 | -0.65 |
| 16 | 16 | 76,00 | 13.68 | 0.3800 | 0.0684 | 16 | 34 | 169.80 | - 1,21 | 0.8490 | - 0:0060 | 16 | 135 | 100 | - 150, 0 | 0.500 | -0.75 |
| 17 | 17 | 84,00 | 13,69 | 0.4200 | 0.0684 | 17 | 33 | 179.85 | - 0.67 | 0.8992 | - 0.0033 | | | | | | |
| 18 | 18 | 92,00 | 13,63 | 0.4600 | 0.0681 | 18 | 32 | 189.90 | - 0.62 | 0.9495 | - 0,0031 | | | | | | |
| 19 | 19 | 100,00 | 13,51 | 0,5000 | 0,0675 | 19 | 31 | 200,00 | - 0,94 | 1.0000 | - 0,0047 | | 1 | 1 | 1 | | |
| 20 | 20 | 107,90 | 13,30 | 0,5395 | 0,0665 | | | | | | , | | | | | | |
| 21 | 21 | 115,90 | 12.95 | 0.5795 | 0, 0647 | | | | | | | | | | 1 | | |
| 22 | 22 | 124,00 | 12,39 | 0.6200 | 0.0619 | | | 1 | | | | | 1 | 1 | 1 | | |
| 23 | 23 | 132,00 | 11,66 | 0,6600 | 0.0583 | | | | | | | | | | | | |
| 24 | 24 | 140,00 | 10.76 | 0.7000 | 0.0538 | | | | | | | | | | | | |
| 25 | 25 | 149,70 | 9,46 | 0.7485 | 0.0473 | | | | | | | | | | | 1 | |
| 26 | 26 | 159,70 | 7.89 | 0.7985 | 0.0394 | | | 1 1 | | | | | | | | | |
| 27 | 27 | 169,80 | 6,08 | 0.8490 | 0.0304 | | | | | | | | 1 | 1 | 1 | 1 | |
| 28 | 28 | 179,80 | 4,12 | 0,8990 | 0,0206 | | 1 | | | | | | | | | | |
| 29 | 29 | 189.80 | 2, 12 | 0,9495 | 0,0106 | | | | | | | | | | 1000 | | |
| 30 | 30 | 194.90 | 1,11 | 0.9745 | 0,0055 | | | 1 | | | | | | | | 1 | |
| 31 | | 200,00 | 0,07 | 1,0000 | 0.0003 | | | | | | | | | | 1 | | |

¹⁾ See Figure 5.1. The coordinates shown here are actual coordinates (except spanwise orifices)

Table 5.3 Continued - Airfoil minus maneuver flap

| Uppe | er sur | face | | | | Lower surface | | | | | | |
|-------|-----------|---------|--------|-------------|--------|---------------|-----------|---------------|---------|----------|----------|--|
| | No. 1) | x | z | x /c | z/c | | No. 1) | × | z | x/c | z/c | |
| | | mm | mm | | | | | mm | mm | | | |
| 1 | 1 | 0,00 | 0,18 | 0,0000 | 0,0009 | 1 | 1 | 0,00 | 0,18 | 0,0000 | 0,0009 | |
| 2 | 2 | 0,65 | 2,32 | 0,0032 | 0,0116 | 2 | 48 | 0,65 | - 1,68 | 0,0032 | - 0,0084 | |
| 3 | 3 | 1,75 | 3,51 | 0,0087 | 0,0175 | 3 | 47 | 1,40 | - 2,39 | 0,0070 | - 0,0119 | |
| 4 | 4 | 3,10 | 4, 48 | 0,0155 | 0,0224 | 4 | 46 | 3,65 | - 3,54 | 0,0182 | - 0,0177 | |
| 5. | 5 | 5,00 | 5,59 | 0,0250 | 0,0279 | 5 | 45 | 9,75 | - 5,35 | 0,0487 | - 0,0267 | |
| 6 | 6 | 6,90 | 6,50 | 0,0345 | 0,0325 | 6 | 44 | 19,75 | - 7,14 | 0,0987 | - 0,0357 | |
| 7 | 7 | 12,90 | 8,75 | 0,0645 | 0,0428 | 7 | 43 | 30,00 | - 8,47 | 0,1500 | - 0,0423 | |
| 8 | 8 | 15,95 | 9,32 | 0,0797 | 0,0466 | 8 | 42 | 40,00 | - 9,42 | 0,2000 | - 0,0471 | |
| 9 | 9 | 19,80 | 10,09 | 0,0990 | 0,0504 | 9 | 41 | 49,85 | - 10,05 | 0,2492 | - 0,0502 | |
| 10 | 10 | 28,00 | 11,28 | 0,1400 | 0,0564 | 10 | 40 | 69,85 | - 10,56 | 0,3492 | - 0,0528 | |
| 11 | 11 | 34,00 | 11,92 | 0,1700 | 0,0596 | 11 | 39 | 89,85 | - 9,91 | 0,4492 | - 0,049 | |
| 12 | 12 | 44,00 | 12,69 | 0,2200 | 0,0634 | 12 | 38 | 110,00 | - 8,24 | 0,5500 | - 0,0413 | |
| 13 | 13 | 51,90 | 13, 11 | 0,2595 | 0,0655 | 13 | 37 | 125,00 | - 5,97 | 0,6450 | - 0,0298 | |
| 14 | 14 | 59,90 | 13,40 | 0,2995 | 0,0670 | 14 | 98 | 140,00 | - 4,57 | 0,7000 | - 0,022 | |
| 15 | 15 | 67,95 | 13,59 | 0,3397 | 0,0679 | 15 | 97 | 150,00 | - 3,33 | 0.7500 | - 0,016 | |
| 16 | 16 | 76,00 | 13,68 | 0,3800 | 0,0684 | 16 | 96 | 150, 50 | 0,56 | 0,7525 | 0,002 | |
| 17 | 17 | 84,00 | 13,69 | 0,4200 | 0,0684 | 17 | 95 | 153,40 | 3,38 | 0,7670 | 0,010 | |
| 18 | 18 | 92,00 | 13,63 | 0,4600 | 0,0681 | 18 | 94 | 158,00 | 5, 23 | 0,7900 | 0,026 | |
| 19 | 19 | 100,00 | 13,51 | 0,5000 | 0.0675 | 19 | 93 | 160.50 | 5,72 | 0,8025 | 0,028 | |
| 20 | 20 | 107,90 | 13,30 | 0,5395 | 0,0665 | 20 21 | _ | 170,00 | 5,84 | 0,8500 | 0,029 | |
| 21 | 21 | 115, 90 | 12,95 | 0,5795 | 0.0647 | | | , | | | | |
| 22 | 22 | 124,00 | 12,39 | 0,6200 | 0.0619 | | | | | | | |
| 23 | 23 | 132,00 | 11,66 | 0.6600 | 0,0583 | | | | * | | | |
| 24 | 24 | 140,00 | 10,76 | 0,7000 | 0,0538 | | | | | | | |
| 25 | 90 | 150,50 | 9,34 | 0.7525 | 0,0467 | | | 6 8888 | | D | | |
| 26 | 91 | 156,30 | 8,45 | 0.7815 | 0,0422 | | | • | M | | | |
| 27 | 92 | 165,50 | 6,87 | 0,8275 | 0,0343 | | | | | | | |
| 28 21 | - | 170,00 | 6,04 | 0.8500 | 0,0320 | | | | | | | |

- 1) See Figure 5.1. The coordinates shown here are actual coordinates
- 2) There was no orifice at x = 170 mm for the configuration with deflected maneuver flap

Pressure orifices on maneuver flap1)

Upper surface Lower su

| | | | | | | er Burr | acc | | | | |
|--------|-------|----------------|---------|------------------|--------|---------|----------------|--------------------|------------------|--|--|
| No. 2) | *K | z _K | *K /c + | z _{K/c} | No. 2) | *K | z _K | x _{K/c} + | z _{K/c} | | |
| 100 | 0.00 | - 1.13 | 0.00 | - 0.0057 | 100 | 0.00 | - 1.13 | 0.00 | - 0.0057 | | |
| 101 | 0.65 | 0.79 | 0.0033 | 0.0040 | 118 | 0.80 | - 2.68 | 0.0040 | - 0.0134 | | |
| 102 | 2.20 | 2.54 | 0.0110 | 0.0127 | 117 | 2.20 | - 3.07 | 0.0110 | - 0.0154 | | |
| 103 | 5.20 | 4.29 | 0.0260 | 0.0215 | 116 | 5.30 | - 2.73 | 0.0265 | - 0.0137 | | |
| 104 | 8.20 | 5.28 | 0.0410 | 0.0264 | 115 | 12.65 | - 1.89 | 0.0633 | - 0.0095 | | |
| 105 | 12.40 | 5.97 | 0.0620 | 0.0299 | 114 | 20.05 | - 1.20 | 0.1003 | - 0.0060 | | |
| 106 | 16.50 | 6.09 | 0.0825 | 0.0305 | 113 | 30.05 | - 0.68 | 0. 1503 | - 0.0034 | | |
| 107 | 20.50 | 5.78 | 0.1025 | 0.0289 | 112 | 40.25 | - 0.63 | 0.2013 | - 0.0032 | | |
| 108 | 28.85 | 4.34 | 0.1443 | 0.0217 | 111 | 50.00 | - 0.44 | 0.2500 | - 0.0022 | | |
| 109 | 36.90 | 2.72 | 0.1845 | 0.0136 | | | | | | | |
| 110 | 45.00 | 1.09 | 0.2250 | 0.0055 | | | | | | | |
| 111 | 50.00 | - 0.44 | 0.2500 | - 0.0022 | | | | | | | |

- Actual coordinates based on flap chord line. The latter coincides with the chord line of the basic airfoil when flap is retracted.
- 2) See Fig. 5.1
- To obtain the x/c based on x/c = 0 for the basic airfoil compute $x/c = 0.85 + x_{SK}/c + x_{K}/c$ $x_{SK}/c = -0.034 \text{ for configuration 5}$ = -0.068 for configuration 4see Fig. 5.2

Table 5.4 Design pressure distribution

| Theory: | |
|--------------------------|--------------------------|
| Pressure distrib | oution at (x, ± 0) |
| Boundary layer: | laminar - turbulent |
| $Re = 2.4 \cdot 10^6$ | |
| M ₀₀ = 0.7685 | $\alpha = 0.750^{\circ}$ |
| c _L = 0.5318 | c _D = 0.00671 |
| c _m =-0.0926 | c ★= - 0.5311 |

| x/c | c _{pU} | ^c pL |
|----------|-----------------|-----------------|
| -0.82500 | 0.06618 | 0.06617 |
| -0.57500 | 0.09941 | 0.09940 |
| -0.35000 | 0.15485 | 0.15486 |
| -0.17500 | 0.27963 | 0.28038 |
| -0.07500 | 0.50459 | 0.51819 |
| -0.03500 | 0.73599 | 0.78358 |
| -0.01500 | 0.95084 | 1.03876 |
| -0.00250 | 1.13419 | 1.26658 |
| 0.00250 | 0.88989 | 1.03310 |
| 0.00750 | 0.48770 | 0.66686 |
| 0.01250 | 0.29890 | 0.52671 |
| 0.01750 | 0.15666 | 0.42404 |
| 0.02500 | -0.04505 | 0.32037 |
| 0.03500 | -0.25093 | 0.20523 |
| 0.04750 | -0.46635 | 0.09181 |
| 0.06500 | -0.68538 | 0.01039 |
| 0.08750 | -0.79707 | -0.05726 |
| 0.11500 | -0.93503 | -0.11307 |
| 0.15500 | -1.03740 | -0.19078 |
| 0.21500 | -1.01624 | -0.26518 |
| 0.27500 | -1.00109 | -0.32502 |
| 0.33500 | -0.94700 | -0.35716 |
| 0.39500 | -0.92493 | -0.33600 |
| 0.45500 | -0.89968 | -0.28749 |
| 0.51500 | -0.85446 | -0.21054 |
| 0.57500 | -0.67432 | -0.09982 |
| 0.63500 | -0.48338 | 0.01870 |
| 0.69500 | -0.38401 | 0.11189 |
| 0.75500 | -0.26212 | 0.19538 |
| 0.81500 | -0.11738 | 0.28866 |
| 0.87500 | 0.04374 | 0.34525 |
| 0.92000 | 0.11764 | 0.34412 |
| 0.95000 | 0.15302 | 0.32431 |
| 0.97750 | 0.20449 | 0.28465 |
| 1.00000 | 0.25309 | 0.26528 |
| 1.02500 | 0.25131 | 0.23996 |
| 1.09000 | 0.15445 | 0.14959 |
| 1.22500 | 0.09375 | 0.08889 |
| 1.47500 | 0.05228 | 0.04742 |
| 1.85000 | 0.03022 | 0.02536 |
| 2.40000 | 0.01319 | 0,00833 |

Experiment DFVLR: Figure 5.3

corresponds to 0.074 mm average grain size

· Table 5.5 Flow conditions included in present data set

| Run | Config. | M _{co} | a o | Re · 10 ⁻⁶ | Transition | Wind Tunnel | Remarks |
|--|---------------|-----------------------------------|------------------------------|----------------------------|--|-------------|--|
| 60/63 84/87 157/160 | Basic airfoil | 0.76 | 2.5/5.0 | 2.31 2.33 3.61 | Free 220K, 30/25L ²⁾ Free | DFVLR 1x1M | Included to show effect of Reynolds number and tran- |
| 9573 | | | 2.04 | 3.5 | Free | ONERA S3MA | sition fixing |
| 9589 | Basic airfoil | 0.76 | 2.10 | 7.6 | Free | | |
| 234to237 240to243 223/229 230 | 51) | 0.70 0.76 0.60/0.65 0.65 | 0/3/5/7 0/3/5/7 3 6 | 2.22 2.32 2.1 2.1 | Free | DFVLR 1x1M | |
| 271/277 | 41) | 0.60/0.65 | 3 | 2.1 | | | |
| 278 | 4 | 0.65 | 6 | 2.1 | Free | DFVLR 1x1M | |
| 9617/9618 9621 960696109612 | 517 | 0.70 0.76 0.506065 | 2/4/6 2/4 2 | 7.3 7.7 5.5/6.6/6.9 | Free | ONERA S3MA | |
| 9625 | 5 | 0.70 | 21/406 | 7.5 | Free | ONERA S3MA | Solid test section walls ³⁾ |

1) See Figure 5. 2
2) Roughness band consisting of No. 220 *Carborundum grit at 30% c on upper and 25% c on lower surface
3) All other data were obtained with perforated walls

Table 5.6 DFVLR 1x1 Meter tests. Aerodynamic coefficients 1)

| Run | M _{co} | a o | Re · 10 ⁻⁶ | c _L | c _m | c _D | Transition | Configuration |
|-----|-----------------|-----|-----------------------|----------------|----------------|----------------|----------------------------|---------------|
| 60 | 0.760 | 2.5 | 2.31 | 0.5687 | -0.0935 | 0.0106 | Free | Basic airfoil |
| 63 | 0.760 | 5.0 | 2.31 | 0.8048 | -0.0971 | 0.0296 | Free | |
| 84 | 0.760 | 2.5 | 2.33 | 0.5606 | -0.0868 | 0.0121 | 220K, 30/25L ³⁾ | |
| 87 | 0.760 | 5.0 | 2.33 | 0.7803 | -0.0899 | 0.0316 | 220K, 30/25L | |
| 157 | 0.760 | 2.5 | 3,61 | 0.5772 | -0.0922 | 0.0121 | Free | |
| 160 | 0.760 | 5.0 | 3, 59 | 0.7879 | -0.0986 | 0.0384 | Free | Basic airfoil |
| 234 | 0.70 | 0.0 | 2.22 | 0.7605 | -0.2599 | 0.0141 | Free | 52) |
| 235 | 0.701 | 3.0 | 2.22 | 1.1806 | -0.2552 | 0.0183 | | |
| 236 | 0.700 | 5.0 | 2.22 | 1.4795 | -0. 2667 | 0.0407 | 1 | |
| 237 | 0.700 | 7.0 | 2.22 | 1.4795 | -0.2409 | 0.0993 | | |
| 240 | 0.760 | 0.0 | 2, 32 | 0.8085 | -0.2917 | 0.0197 | | |
| 241 | 0.760 | 3.0 | 2.31 | 1,2230 | -0.3150 | 0.0412 | | |
| 242 | 0.759 | 5.0 | 2.31 | 1,3241 | -0. 2930 | 0.0578 | | |
| 243 | 0.761 | 7.0 | 2.31 | 1.3811 | -0.2741 | 0.1088 | | |
| 223 | 0.600 | 3.0 | 2.01 | 1.0543 | -0.2333 | 0.0139 | | |
| 229 | 0.650 | 3.0 | 2.12 | 1.1154 | -0.2419 | 0.0150 | | |
| 230 | 0,650 | 6.0 | 2.12 | 1.4738 | -0.2211 | 0.0362 | Free | 5_ |
| 271 | 0.600 | 3.0 | 2.03 | 0.8430 | -0.1563 | 0.0141 | Free | 42) |
| 277 | 0.650 | 3.0 | 2.13 | 0.8876 | -0.1615 | 0.0149 | | |
| 278 | 0.650 | 6.0 | 2.12 | 1.2941 | -0.1560 | 0.0321 | Free | 4 |

- 1) All data are uncorrected
- 2) See Figure 5.2
- 3) See Foot-note '2) of Table 5.5
- 4) Solid test section walls

| Run | M _{co} | a o | Re · 10 ⁻⁶ | e _L | c m | c _D | Transition | Configuration |
|--------|-----------------|------|-----------------------|----------------|----------|----------------|------------|--|
| 9617 | 0.703 | 2.07 | 7.34 | 1.149 | -0.2517 | 0.0224 | Free | 52) |
| | 0.703 | 4.08 | 7, 25 | 1.446 | -0.2604 | 0.0401 | | |
| 9618 | 0.702 | 6.03 | 7.28 | 1.461 | -0.2525 | 0.1079 | | |
| 9621 | 0.760 | 2.05 | 7,73 | 1.206 | -0.3031 | 0.0354 | | No. of the Control of |
| | 0.761 | 4.07 | 7.73 | 1.253 | -0.2728 | 0.0681 | | |
| 9606 | 0.499 | 2.05 | 5, 55 | 0.997 | -0, 2286 | 0.0107 | | |
| 9610 | 0.600 | 2.06 | 6,61 | 1.038 | -0, 2390 | 0.0122 | | |
| 9612 | 0.649 | 2.06 | 6,97 | 1.076 | -0.2442 | 0.0128 | | |
| 962541 | 0.702 | 2.11 | 7.52 | 1.398 | -0.3126 | 0.0756 | | |
| | 0.702 | 4.06 | 7.51 | 1.300 | -0.2691 | 0.1404 | Free | 5 |
| 9573 | 0.760 | 2.04 | 3,50 | 0.6037 | -0.0965 | 0.0127 | Free | Basic arifoil |
| 9589 | 0.760 | 2.10 | 7.60 | 0.6180 | -0.0935 | 0.0128 | | |

Table 5.8 DFVLR 1x1 Meter tests. Pressure distributions

a. Basic airfoil (See Table 5.6 for test conditions and aerodynamic coefficients)

| Run | 60 | | | Run | 84 | | | Run | 157 | | |
|-------|---------|---------|--------|-------|--------|---------|--------|-------|---------|---------|----------|
| NR | X/L | CP | ML | NR | X/L | CP | ML | NR | X/L | CP | ML |
| UPPER | | | | UPPER | | | | UPPER | SURFACE | | nc. |
| 1 | 0.0 | 1.1531 | 0.0 | 1 | 0.0 | 1.1504 | 0.0279 | 1 | 0.0 | 1.1515 | 0.0215 |
| 2 | 0.0032 | 0.5220 | 0.5256 | 2 | 0.0032 | 0.5189 | 0.5305 | 2 | 0.0032 | 0.5168 | 0. 5321 |
| 3 | 0.0087 | 0.1140 | 0.7114 | 3 | 0.0087 | 0.1124 | 0.7116 | 3 | 0.0087 | 0.1096 | |
| 4 | 0.0155 | -0.0616 | 0.7860 | 4 | 0.0155 | -0.0586 | 0.7843 | 4 | 0.0155 | -0.0553 | 0.7130 |
| 5 | 0.0250 | -0.2658 | 0.8727 | 5 | 0.0250 | -0.2711 | 0.8748 | 5 | 0.0250 | -0.2685 | 0.7834 |
| 6 | 0.0345 | -0.4678 | 0.9601 | 6 | 0.0345 | -0.4698 | 0.9609 | 6 | 0.0345 | -0.4700 | 0.8740 |
| 7 | 0.0645 | -0.7182 | 1.0732 | 7 | 0.0645 | -0.7151 | 1.0723 | 7 | 0.0645 | -0.7147 | 0.9615 |
| 8 | 0.0797 | -0.8822 | 1.1514 | 8 | 0.0797 | -0.8783 | 1.1504 | 8 | 0.0797 | -0.8807 | 1.0720 |
| 9 | 0.0990 | -0.9690 | 1.1947 | 9 | 0.0990 | -0.9620 | 1.1927 | 9 | 0.0990 | -0.9691 | 1.1519 |
| 10 | 0.1400 | -0.9891 | 1.2053 | 10 | 0.1400 | -0.9825 | 1.2028 | 10 | 0.1400 | -0.9873 | 1.1960 |
| ii | 0.1700 | -1.0053 | 1.2130 | 11 | 0.1700 | -0.9964 | 1.2103 | 11 | 0.1700 | -1.0011 | 1.2056 |
| 12 | 0.2200 | -1.0125 | 1.2167 | 12 | 0.2200 | -1.0030 | 1.2131 | 12 | 0.2200 | | 1.2128 |
| 13 | 0.2595 | -1.0159 | 1.2198 | 13 | 0.2595 | -1.0118 | 1.2151 | 13 | 0.2595 | -1.0030 | 1.2131 |
| 14 | 0.2995 | -1.0315 | 1.2273 | 14 | 0.2995 | -1.0579 | 1.2396 | 14 | 0.2995 | -1.0053 | 1.2133 |
| 15 | 0.3397 | -1.0332 | 1.2265 | 15 | 0.3397 | -1.0463 | 1.2351 | | | -1.0192 | 1.2209 |
| 16 | 0.3800 | -1.0358 | 1.2299 | 16 | 0.3800 | -1.0388 | 1.2305 | 15 | 0.3397 | -1.0315 | 1.2270 |
| 17 | 0.4200 | -1.0042 | 1.2134 | 17 | 0.4200 | -1.0173 | 1.2199 | 16 | 0.3800 | -1.0419 | 1.2331 |
| 18 | 0.4600 | | | 18 | 0.4600 | -0.9384 | 1.1797 | | 0.4200 | -1.0317 | 1.2281 |
| 19 | 0.5000 | -0.9515 | 1-1864 | 19 | 0.5000 | -0.5645 | 1.0034 | 18 | 0-4600 | -0.9953 | 1.2094 |
| 20 | 0.5395 | -0.5863 | 1.0127 | 20 | 0.5395 | -0.4580 | 0.9562 | 19 | 0.5000 | -0.9587 | 1.1906 |
| | | -0.4587 | 0.9559 | | 0.5795 | | | 20 | 0.5395 | -0.5610 | 1.0021 |
| 21 | 0.5795 | -0.4613 | 0.9566 | 21 | | -0.4703 | 0.9618 | 21 | 0.5795 | -0-4727 | 0.9624 |
| 22 | 0.6200 | -0.4901 | 0.9695 | 22 | 0.6200 | -0.4893 | 0.9702 | 22 | 0.6200 | -0.4710 | 0.9619 |
| 23 | 0.6600 | -0.5043 | 0.9753 | 24 | 0.6600 | -0.4892 | 0.9702 | 23 | 0.6600 | -0.4774 | 0.9650 |
| 24 | 0.7000 | -0.4104 | 0.9346 | 25 | 0.7000 | -0.3968 | 0.9295 | 24 | 0.7000 | -0.3949 | 0.9288 |
| 25 | 0.7485 | -0.3201 | 0.8954 | 26 | 0.7985 | | 0.8898 | 25 | 0.7485 | -0.3076 | 0.8908 |
| 26 | 0.7985 | -0.1975 | 0.8432 | 27 | 0.8490 | -0.1852 | 0.8387 | 26 | 0.7985 | -0.1929 | 0.8422 |
| 28 | | -0.0781 | 0.7930 | 28 | 0.8990 | 0.0266 | 0.7855 | 27 | 0.8490 | -0.0800 | 0.7946 |
| 29 | 0.8990 | 0.0232 | 0.7501 | 29 | 0.9495 | 0.1111 | 0.7491 | 28 | 0.8990 | 0.0140 | 0.7546 |
| | 0.9495 | 0.1145 | 0.7111 | 30 | 0.9745 | | 0.7128 | 29 | 0.9495 | 0.0990 | 0.7182 |
| 30 | 0.9745 | 0.1558 | 0.6934 | | 1.0000 | 0.1486 | 0.6969 | 30 | 0.9745 | 0.1361 | 0.7022 |
| 31 | 1.0000 | 0.1910 | 0.6780 | LOWER | | 0.1388 | 0.7016 | 31 | 1.0000 | 0.1385 | 0.7014 |
| LOWER | SURFACE | | | | | 1.1504 | 0.0279 | LOWER | SURFACE | | |
| 1 | 0.0 | 1.1531 | 0.0 | 1 | 0.0032 | 0.8819 | | 1 | 0.0 | 1.1515 | 0.0215 |
| 2 | | 0.8791 | 0.3367 | 3 | | | 0.3350 | 2 | 0.0032 | 0.8728 | 0.3411 |
| | 0.0070 | 0.5864 | 0.4983 | 4 | 0.0070 | 0.5855 | 0.4993 | 3 | 0.0070 | 0.5650 | 0.5093 |
| 5 | 0.0182 | 0.2646 | 0.6461 | 5 | 0.0182 | 0.2706 | 0.6439 | 4 | 0.0182 | 0.2530 | 0.6516 |
| | 0.0487 | 0.0623 | 0.7331 | | | 0.0618 | 0.7342 | 5 | 0.0487 | 0.0534 | 0.7374 |
| 6 | 0.0987 | -0.0609 | 0.7854 | 7 | 0.0987 | -0.0611 | 0.7863 | 6 | 0.0987 | -0.0490 | 0.7810 |
| 7 | 0.1500 | -0.1227 | 0.8112 | | 0.1500 | -0.1179 | 0.8103 | 1 | 0.1500 | -0.1099 | 0.8070 |
| 8 | 0.2000 | -0.1817 | 0.8366 | 8 | 0.2000 | -0.1740 | 0.6340 | 8 | 0.2000 | -3.1695 | 0.8322 |
| 9 | 0.2492 | -0.2535 | 0.8669 | 9 | 0.2492 | -0.2290 | 0.8575 | 9 | 0.2492 | -0.2431 | 0.8632 |
| 10 | 0.3492 | -0.2932 | 0.8840 | 10 | 0.3492 | -0.2735 | 0.8763 | 10 | 0.3492 | -0.2912 | 0.8841 |
| 11 | 0.4492 | -0.2842 | 0.8866 | 11 | 0.4492 | -0.2729 | 0.8761 | 11 | 0.4492 | -0.2833 | 0.8811 |
| 12 | 0.5500 | -0.1255 | 0.8131 | 12 | 0.5500 | -0.1319 | 0.8163 | 12 | 0.5500 | -0-1407 | 0. 82 02 |
| 13 | 0.6450 | 0.0757 | 0.7276 | 13 | 0.6450 | 0.0531 | 0.7376 | | 0.6450 | 0.0472 | 0.7402 |
| 14 | 0.7500 | 0.2244 | 0.6638 | 14 | 0.7500 | 0.1974 | 0.6759 | 14 | 0.7500 | 0.1940 | 0.6773 |
| 15 | 0.8000 | 0.2665 | 0.6456 | 15 | 0.8000 | 0.2438 | 0.6558 | 15 | 0.8000 | 0.2441 | 0. 6558 |
| 16 | 0.8490 | 0.3161 | 0.6237 | 16 | 0.8490 | 0.2897 | 0.6358 | | 0.8490 | 0.2900 | 0.6357 |
| 17 | 0.8992 | 0.3312 | 0.6170 | 17 | 0.8992 | 0.3052 | 0.6290 | 17 | 0.8992 | 0.3034 | 0.6296 |
| 18 | 0.9495 | 0.3088 | 0.6273 | 18 | 0.9495 | 0.2853 | 0.6379 | | 0.9495 | 0.2801 | 0.6398 |
| 19 | 1.0000 | 0.1910 | 0.6780 | 19 | 1.0000 | 0.1388 | 0.7016 | 19 | 1.0000 | 0.1385 | 0.7014 |

Table 5.8 Continued

a. Basic airfoil (See Table 5.6 for test conditions and aerodynamic coefficients)

| Run 63 | | | | Run 8 | 77 | | | Run | 160 | | |
|--------|----------------|---------|---------|-------|---------|---------|--------|-------|--|--------------------|--------|
| | | | | NR. | X/L | CP | | NR | ACT TO SERVICE STATE OF THE PARTY OF THE PAR | | |
| UPPER | X/L SURFACE | CP | ML | UPPER | | CP | ML | UPPER | X/L SURFACE | CP | ML |
| 1 | 0.0 | 1.0715 | 0.1807 | 1 | 0.0 | 1.0739 | 0.1778 | 1 | 0.0 | 1.0792 | 0.1713 |
| 2 | 0.0032 | 0.1594 | 0.6923 | 2 | 0.0032 | 0.1743 | 0.6860 | 2 | 0.0032 | 0.1663 | 0.6890 |
| 3 | 0.0087 | -0.2680 | 0.8742 | 3 | 0.0087 | -0.2458 | 0.8645 | 3 | 0.0087 | -0.2524 | 0.8668 |
| 4 | 0.0155 | -0.3854 | 0.9247 | 4 | 0.0155 | -0.3653 | 0.9158 | 4 | 0.0155 | -0.3604 | 0.9133 |
| 5 | 0.0250 | -0.5573 | 0.9997 | 5 | 0.0250 | -0.5432 | 0.9936 | 5 | 0.0250 | -0.5408 | |
| 6 | 0.0345 | -0.7624 | 1.0931 | 6 | 0.0345 | -0.7462 | 1.0866 | 6 | 0.0345 | -0.7488 | 0.9926 |
| 7 | 0.0645 | -0.9849 | 1.2028 | 7 | 0.0645 | -0.9701 | 1.1965 | 7 | 0.0645 | -0.9694 | 1.0875 |
| 8 | 0.0797 | -1.1208 | 1.2752 | ė | 0.0797 | -1.1067 | 1.2685 | 8 | 0.0797 | -1.1078 | 1.1955 |
| 9 | 0.0990 | -1.1942 | 1.3170 | 9 | 0.0990 | -1.1845 | 1.3111 | 9 | 0.0990 | -1.1863 | 1.2684 |
| 10 | 0.1400 | -1.2235 | 1.3339 | 10 | 0.1400 | -1.2140 | 1.3276 | 10 | 0.1400 | | 1.3118 |
| 11 | 0.1700 | -1.2444 | 1.3465 | ii | 0.1700 | -1.2340 | 1.3400 | 11 | 0.1700 | -1.2152 -1.2377 | 1.3279 |
| 12 | 0.2200 | -1.2484 | 1.3493 | 12 | 0.2200 | -1.2405 | 1.3438 | 12 | 0.2200 | | 1.3398 |
| 13 | 0.2595 | -1.2507 | 1.3515 | 13 | 0.2595 | -1.2450 | 1.3469 | 13 | 0.2595 | -1.2406 | 1.3427 |
| 14 | 0.2995 | -1.2731 | 1.3636 | 14 | 0.2995 | -1.2820 | 1.3693 | 14 | 0.2995 | -1.2435 -1.2597 | 1.3448 |
| 15 | 0.3397 | -1.2785 | 1.3672 | 15 | 0.3397 | -1.2854 | 1.3710 | 15 | 0.3397 | -1.2724 | 1.3547 |
| 16 | 0.3800 | -1.2844 | 1.3708 | 16 | 0.3800 | -1.2882 | 1.3727 | 16 | 0.3800 | | 1.3619 |
| 17 | 0.4200 | -1.2699 | 1.3608 | 17 | 0.4200 | -1.2759 | 1.3648 | 17 | | -1.2837 | 1.3691 |
| 18 | 0.4600 | -1.2193 | 1.3299 | 18 | 0.4600 | -1.2136 | 1.3281 | 18 | 0.4200 | -1.2760 | 1.3649 |
| 19 | 3.5000 | -0.9629 | 1.1915 | 19 | 0.5000 | -0.7914 | 1.1083 | 19 | 0.5000 | -1.2066 | 1.3237 |
| 20 | 0.5395 | -0.6808 | 1.0556 | 20 | 0.5395 | -0.5559 | 0.9996 | 20 | 0.5395 | -0.7974 | 1.1106 |
| 21 | 0.5795 | -0.5216 | 0.9843 | 21 | 0.5795 | -0.4528 | 0.9537 | 21 | 0.5795 | -0.6248 | 1.0302 |
| 22 | 0.6200 | -0.4305 | 0.9441 | 22 | 0.6200 | -0.4050 | 0.9330 | 22 | 0.6200 | -0.5594 | 1.0007 |
| 23 | 0.6600 | -0.3845 | 0.9244 | 23 | 0.6600 | -0.3803 | 0.9223 | 23 | 0.6600 | -0.4977 | 0.9732 |
| 24 | 0.7000 | -0.3327 | 0.9018 | 24 | 0.7000 | -0.3340 | 0.9023 | 24 | 0.7000 | -0.4400 | 0.9479 |
| 25 | 0.7485 | -0.2821 | 0.8802 | 25 | 0.7485 | -0.2808 | 0.8797 | 25 | 0.7485 | -0.3863 | 0.9249 |
| 26 | 0.7985 | -0.2065 | 0.8478 | 26 | 0.7985 | -0.2165 | 0.8526 | 26 | 0.7985 | -0.3196 | 0.8956 |
| 27 | 0.8490 | -0.1254 | 0.8132 | 27 | 0.8490 | -0.1462 | 0.8225 | 27 | 0.8490 | -0.1982 | 0.8687 |
| 28 | 0.8990 | -0.0606 | 0.7855 | 28 | 0.8990 | -0.0848 | 0.7962 | 28 | 0.8990 | -0.1353 | 0.8435 |
| 29 | 0.9495 | 0.0380 | 0.7438 | 29 | 0.9495 | -0.0057 | 0.7625 | 29 | 0.9495 | -0.0611 | 0.8164 |
| 30 | 0.9745 | 0.0664 | 0.7319 | 30 | 0. 9745 | 0.0146 | 0.7539 | 30 | 0.9745 | -0.0330 | 0.7856 |
| 31 | 1.0000 | 0.0934 | 0.7201 | 31 | 1.0000 | 0.0312 | 0.7462 | 31 | 1.0000 | -0.0112 | |
| LOWER | SURFACE | | | LOWER | | | | | SURFACE | -0.0112 | 0.7650 |
| 1 | 0.0 | 1.0715 | 0.1807 | 1 | 0.0 | 1.0739 | 0.1778 | 1 | 0.0 | 1.0792 | 0.1713 |
| 2 | 0.0032 | 1.0747 | 0.1767 | 2 | 0.0032 | 1.0699 | 0.1820 | 2 | 0.0032 | 1.0668 | 0.1853 |
| 3 | 0.0070 | 0.8796 | 0.3366 | 3 | 0.0070 | 0.8655 | 0.3455 | 3 | 0.0070 | 0.8568 | 0.3505 |
| 4 | 0.0182 | 0.5661 | 0.5088 | 4 | 0.0182 | 0.5554 | 0.5138 | 4 | 0.0182 | 0.5411 | 0.5204 |
| 5 | 0.0487 | 0.3223 | 0.6213 | 5 | 0.0487 | 0.3115 | 0.6259 | 5 | 0.0487 | 0.2979 | 0.6318 |
| 6 | 0.0987 | 0.1590 | 0.6925 | 6 | 0.0987 | 0.1511 | 0.6958 | 6 | 0.0987 | 0.1363 | 0.7019 |
| 7 | 0.1500 | 0.0773 | 0.7275 | 7 | 0.1500 | 0.0716 | 0.7298 | 7 | 0.1500 | 0.0592 | 0.7348 |
| 8 | 0.2000 | -0.0023 | 0.7612 | 8 | 0.2000 | -0.0064 | 0.7629 | 8 | 0.2000 | -0-0154 | 0.7668 |
| 9 | 0.2492 | -0.0779 | 0.7934 | 9 | 0.2492 | -0.0591 | 0.7854 | 9 | 0.2492 | -0.0868 | 0.7965 |
| 10 | 0.3492 | -0.1546 | 0.8258 | 10 | 0.3492 | -0.1480 | 0.8235 | 10 | 0.3492 | -0.1716 | 0.8324 |
| 11 | 0.4492 | -0.1827 | 0.8375 | 11 | 0.4492 | -0.1812 | 0.8374 | 11 | 0.4492 | -0.2072 | 0.8474 |
| 12 | 0.5500 | -0.1042 | 0.8039 | 12 | 0.5500 | -0.0841 | 0.7959 | 12 | 0.5500 | -0.1104 | 0.8058 |
| 13 | 0.6450 | 0.1124 | 0.7121 | 13 | 0.6450 | 0.0722 | 0.7294 | 13 | 0.6450 | 0.0535 | 0.7371 |
| 14 | 0.7500 | 0.2363 | 0.6589 | 14 | 0.7500 | 0.1986 | 0.6753 | 14 | 0.7500 | 0.1855 | 0.6804 |
| 15 | 0.8000 | 0.2667 | 0. 6455 | 15 | 0.8000 | 0.2334 | 0.6601 | 15 | 0.8000 | 0-2230 | 0.6642 |
| 16 | 0.8490 | 0.3056 | 0.6284 | 16 | 0.8490 | 0.2743 | 0.6423 | 16 | 0.8490 | 0.2644 | 0.6462 |
| 17 | 0.8992 | 0.3099 | 0.6265 | 17 | 0.8992 | 0.2776 | 0.6411 | 17 | 0.8992 | 0.2678 | 0.6450 |
| 18 | 0.9495 | 0.2724 | 0.6433 | 18 | 0.9495 | 0.2339 | 0.6601 | 18 | 0.9495 | 0.2138 | 0.6687 |
| 19 | 1.0000 | 0.0934 | 0.7201 | 19 | 1.0000 | 0.0312 | 0.7462 | 19 | 1.0000 | -0.0112 | 0.7650 |
| | | | | • | | | | | | | |

| Table 5.8 Co | ontinue | d l | | 1 | b. Airf | oil with | deflec | | | er flap | 1) |
|--------------|---------|---------|---------|---------|-----------|----------|--------|-------|---------|---------|--------|
| | Run | 234 | SECTION | HS2) | Run 235 | FLAP | | Run : | 235 | SECTION | HS |
| | NR | X/L | CP | ML | X/L | CP | ML | NR | X/L | CP | ML |
| | | SUPFACE | | | UPPER SI | | | UPPER | SUPFACE | | |
| | 1 | 0.0 | 1.1359 | 0.0 | 0.0 | 0.7043 | 0.4010 | 1 | 0.0 | 1.0167 | 0.2012 |
| | 2 | 0.0032 | 0.5141 | 0.4454 | 0.0130 | -0.4470 | 0.8702 | . 2 | 0.0032 | -0.0083 | 0.7044 |
| | 3 | 0.0087 | 0.2014 | 0.6216 | 0.0440 | -0.1717 | 0.7656 | 3 | 0.0087 | -0.4543 | 0.8747 |
| | 4 | 0.0155 | 0.0090 | 0.6968 | 0.1040 | -0.1450 | 0.7553 | 4 | 0.0155 | -0.5619 | 0.9160 |
| | 5 | 0.0250 | -0.2186 | 0.7838 | 0.1640 | -0.6255 | 0.9391 | 5 | 0.0250 | -0.7446 | 0.9876 |
| | 6 | 0.0345 | -0.4287 | 0.8638 | 0.2480 | -0.7469 | 0.9872 | 6 | 0.0345 | -0.9518 | 1.0720 |
| | 7 | 0.3645 | -0.6816 | 0.9621 | 0.2300 | -1.3235 | 1.2355 | 7 | 0.0645 | -1.1884 | 1.1742 |
| | | 0.0797 | -0.8163 | 1.0152 | 0.4100 | -1.1806 | 1.1693 | 8 | 0.0797 | -1.3274 | 1.2393 |
| | 9 | 0.0990 | -0.8723 | 1.0395 | 0.5770 | -0.2759 | 0.8050 | 9 | 0.0990 | -1.4092 | 1.2786 |
| | 10 | 0.1400 | -0.7792 | 1.0010 | 0.7380 | -3.0580 | 0.7223 | 10 | 0.1400 | -1.4184 | 1.2836 |
| | 11 | 0.1700 | -0.7132 | 0.9738 | 0.9000 | 0.0973 | 0.6638 | 11 | 0.1700 | -1.4250 | 1.2873 |
| | 12 | 0.2200 | -0.7433 | 0.0856 | :.0000 | 0.1920 | 0.6253 | 12 | 0.5500 | -1.4089 | 1.2789 |
| | 13 | 0.2595 | -0.7659 | 0.9751 | | | | 13 | 0.2595 | -1.3938 | 1.2723 |
| | 14 | 0.2995 | -0.7247 | 0.9787 | LOWER SU | RFACE | | 1 14 | 0.2995 | -1.3985 | 1.2746 |
| | 15 | 0.3397 | -0.7034 | 0.0702 | 0.0 | 0.7043 | 0.4010 | 15 | 0.3397 | -1.3825 | 1.2667 |
| | 16 | 0.3800 | -0.6825 | 0.9619 | 0.0160 | 0.9745 | 0.2363 | 1 16 | 0.3800 | -1.3672 | 1.2589 |
| | 17 | 0.4200 | -0.6730 | 0. 9584 | 0.0440 | 0.6285 | 0.4383 | 17 | 0.4200 | -1.3039 | 1.2282 |
| | 18 | 0.4600 | -0.6930 | 0.9664 | 0.1360 | 0.6076 | 0.4482 | 18 | 0.4600 | -0.8685 | 1.0375 |
| | 19 | 0.5000 | -0.7421 | 0.9861 | 0.2530 | 0.5601 | 0.4703 | 19 | 0.5000 | -0.6412 | 0.9462 |
| | 20 | 0.5395 | -0.7777 | 1.0006 | 0.4010 | 0.5324 | 0.4831 | 20 | 0.5395 | -0.6460 | 0.9486 |
| | 21 | 0.5795 | -0.7971 | 1.0071 | 2.6010 | 0.4832 | 0.5049 | 1 21 | 0.5795 | -0.7074 | 0.9726 |
| | 22 | 0.6200 | -0.9260 | 1.0193 | 0.8050 | 0.3900 | 0.5449 | 22 | 0.6200 | -0.7757 | 1.0001 |
| | 23 | 0.6600 | -0.8622 | | 1.0000 | 0.1920 | 0.6253 | 1 23 | 0.6600 | -0.8163 | 1.0165 |
| | 24 | 0.7000 | -0.7120 | 0.9736 | | FLAP | | 24 | 0.7000 | -0.7067 | 0.9728 |
| | 25 | 0.7525 | -0.5965 | 0.9283 | . X/L | CP | ML | 25 | 0.7525 | -0.6028 | 0.9317 |
| | 26 | 2.7815 | -0.5097 | 0.8949 | I HPPER S | | | 26 | 0.7815 | -0.5231 | 0.9009 |
| | 27 | 0.8275 | -0.3831 | 0.8462 | · OFFE | 0.6517 | 0.4273 | 27 | 0.8275 | -0.4029 | 0.8547 |
| | 28 | 0.8500 | -0.7212 | 0. 8224 | 10.0 | -0.5370 | 0.9050 | 28 | 0.8500 | -0.3441 | 0.8317 |
| | LOWER | | | | . 3 | -0.2303 | 0.7877 | LOWER | SUPFACE | | |
| | 1 | 0.0 | 1.1369 | 0.0 | 0.0440 | -0.1752 | 0.7668 | 1 | 0.0 | 1.0167 | 0.2012 |
| | ż | 0.0032 | 0.7295 | 0.3884 | 0.1640 | -0.5795 | 0.9217 | 2 | 0.0032 | 1.0745 | 0.1394 |
| | 3 | 0.0070 | 0.3804 | 0.5488 | | -0.6972 | 0.9678 | 3 | 0.0070 | 0.8924 | 0.2950 |
| | 4 | 0.0182 | 0.2003 | 0.6653 | | -1.3673 | 1.2569 | 4 | 0.0182 | 0.5982 | 0.4579 |
| | 5 | 0.0487 | -0.0645 | 0.7251 | 1 0.4100 | -1.2278 | 1.1906 | 5 | 0.0487 | 0.3416 | 0.5655 |
| | 6 | 0.0987 | -0.1300 | 0.7499 | 0.5770 | -0.2995 | 0.8143 | 6 | 0.0987 | 0.1940 | 0.6253 |
| | 7 | 0.1500 | -0.1581 | 0.7604 | | -0.0687 | 0.7265 | 7 | 0.1500 | 0.1303 | 0.6506 |
| | 8 | 0.2000 | -0.1860 | 0.7739 | | 0.0784 | 0.6699 | 8 | 0.2000 | 0.0670 | 0.6751 |
| | 9 | 0.2492 | -0.2206 | 0.7840 | | 0.1633 | 0.6368 | 9 | 0.2492 | 0.0151 | 0.6952 |
| | 10 | 0.3492 | -0.2131 | 0.7808 | | 00 | | 10 | 0.3492 | -0.0212 | 0.7090 |
| | 11 | 0.4492 | -0.1694 | 0.7644 | | UPFACE | | 11 | 0.4492 | -0.0154 | 0.7055 |
| | 12 | 0.5500 | 0.0015 | 0.6995 | 0.0 | 0.5517 | 0.4273 | 12 | 0.5500 | 0.0643 | 0.675 |
| | 12 | 0.6450 | 0.1705 | 0.6239 | | 0.9771 | 0.2343 | 13 | 0.6450 | 0.2524 | 0.601 |
| | 14 | 0.7000 | 0.2380 | 0.6192 | | 0.6082 | 0.4479 | 14 | 0.7000 | 0.2754 | 0.592 |
| | 15 | 0.7500 | 0.2406 | 0.6053 | | 0.5786 | 0.4619 | 15 | 0.7500 | 0.2965 | 0.588 |
| | 16 | 0.7525 | 0.2292 | 2.6134 | | 0.526R | 0.4855 | 16 | 0.7525 | 0.2834 | 0.589 |
| | 17 | 0.7670 | 0.2183 | 0.6147 | | 0.4987 | 0.4979 | 17 | 0.7670 | 0.2631 | 0.597 |
| | 18 | 0.7900 | 0.2144 | 0.6163 | | 0.4505 | 0.5189 | 18 | 0.7900 | 0.2629 | 0.597 |
| | 19 | 0.8025 | 0.2686 | 0.5945 | | 0.3567 | 0.5584 | 19 | 0.8025 | 0.3381 | 0.567 |
| | 20 | 0.8500 | -0.3212 | 0.8224 | | 0.1633 | | | 0.8500 | -0.3441 | 0.831 |
| | 20 | 0.6200 | 30 :616 | | 1.0000 | 0.1000 | | | | | |

<sup>20 0.8500 -0.3212 0.8224 1.0000 0.1633 0.6368 20 0.8500 -0.2441 0.8317

1)</sup> See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

| Run | 236 | SECTION | HS 2) | Run 236 | FLAP | ML | Run | | SECTION | |
|---|--|--|--|--|--|--|--|---|---|--|
| NR UPPER | SURFACE | CP. | ML | UPPER SU | RFACE | | NR UPPER | X/L SURFACE | CP | ML |
| 1 | 0.0 | 0.8196 | 0.3392 | 0.0130 | 0.7199 | 0.3934 | 1 | 0.0 | 0.6449 | 0.4304 |
| 2 | 0.0032 | -0.4598 | 1.0686 | 0.0440 | -0.1278 | 0.7491 | 2 | 0.0032 | -0.7691 -1.2951 | 0.9961 |
| 4 | 0.0155 | -0.9589 | 1.0743 | | -0.1263 -0.5733 | 0.7487 | 4 | 0.0155 | -1.3824 | 1.2630 |
| 5 | 0.0250 | -1.0624 | 1.1184 | 0.2480 | -0.7499 | 0.9890 | 5 | 0.0250 | -1.4765 | 1.2667 |
| 7 | 0.0645 | -1.4636 | 1.3041 | 0.4100 | -0.8565 -0.6910 | 0.9661 | 7 | 0.0645 | -1.6364 | 1.3956 |
| 8 | 0.0797 | -1.6520 | 1.3690 | 0.5770 | -0.2295 | 0.7877 | 8 | 0.0797 | -1.7415 -1.8016 | 1.4555 |
| 10 | 0.1400 | -1.6650 | 1.4116 | 0.7380 | 0.1004 | 0.6614 | 10 | 0.1400 | -1.8086 | 1.4963 |
| 11 | 0.1700 | -1.6751 -1.6614 | 1.4169 | 1.0000 | 0.2103 | 0.6183 | 11 | 0.1700 | -1.8138 -1.7869 | 1.4996 |
| 13 | 0.2595 | -1 .5467 | 1.4029 | LOWER SU | DEACE | | 13 | 0.2595 | -1.7660 -1.7277 | 1.4702 |
| 14 | 0.2995 | -1.6558 | 1.4080 | 0.0 | 0.7199 | 0.3934 | 15 | 0.3397 | -1.6793 | 1.4193 |
| 16 | 0.3900 | -1.6465 | 1.4023 | | 0.9829 | 0.2298 | 16 | 0.3800 | -1.6305 -1.4167 | 1.3913 |
| 18 | 0.4200 | -1.6338 -1.6131 | 1.3952 | 0.1060 | 0.6326 | 0.4367 | 18 | 0.4600 | -1.2881 | 1.2185 |
| 19 | 0.5000 | -1.6222 -1.6228 | 1.3878 | 0.2530 | 0.5845 | 0.4594 | 19 20 | 0.5000 | -1.0908 -0.9067 | 1.1300 1.0518 |
| 21 | 0.5795 | -1.0723 | 1.1213 | 0.6010 | 0.5058 | 0.4946 | 21 | 0.5795 | -0.7937 | 1.0062 |
| 22 | 0.6500 | -0.9076 -0.7683 | 1.0518 | 1.0000 | 0.4121 | 0.5350 | 22 | 0.6600 | -0.7211 -0.6953 | 0.9770 |
| 24 | 0.7000 | -0.6485 | 0.9481 | | | | 24 | 0.7000 | -0.6512 | 0.9491 |
| 25 26 | 0.7525 | -0.4666 | 0.8779 | Run 23' | 7 FLA | ML | 25 | 0.7525 | -0.5838 -0.5581 | 0.9231 |
| 27 | 0.6275 | -0.3452 | 0.9311 | UPPER S | URFACE | | 27 | 0.8275 | -0.5155 | 0.8957 |
| LOWER | 0.8500 SURFACE | -0.3152 | 0. 9202 | 0.0 | 0.7189 | 0.3936 | LOWER | O.8500 SURFACE | -0.4947 | 0.8885 |
| 1 | 0.0 | 0.8196 | 0.3392 | 0.0440 | -0.1813 | 0.7691 | 1 | 0.0 | 0.6449 | 0.4304 |
| 2 | 0.0032 | 1.0565 | 0.0 | 0.1040 | -0.2125 -0.7391 | 0.7807 | 3 | 0.0032 | 1.1269 | 0.0243 |
| 4 | 0.0122 | 0.8008 | 0.3406 | 0.2480 | -0.7563 | 0.9907 | 5 | 0.0182 | 0.9070 | 0.2849 |
| 5 | 0.0487 | 0.5447 | 0.4772 | 0.3300 | -0.6070 | 0.9939 | . 6 | 0.0987 | 0.6537 | 0.4262 |
| 7 | 0.1500 | 0.2924 | 0.5847 | 0.5770 | -0.3176 | 0.8212 | 7 8 | 0.1500 | 0.3807 | 0.5485 |
| 8 | 0.2000 | 0.2135 | 0.6163 | 0.7380 | -0.1970 -0.1170 | 0.7754 | 9 | 0.2492 | 0.2154 | 0.6158 |
| 10 | 0.3492 | 0.0956 | 0.6626 | 1.0000 | -0.0315 | 0.7122 | 10 | 0.3492 | 0.1449 | 0.6436 |
| 11 | 0.4492 | 0.0837 | 0.6677 | LOWER SO | | | 12 | 0.5500 | 0.1621 | 0.6366 |
| 13 | 0.6450 | 0.3061 | 0.5787 | 0.0160 | 0.7189 | 0.3936 | 13 | 0.6450 | 0.2996 | 0.5818 |
| 14 | 0.7000 | 0.3228 | 0.5725 | 0.0440 | 0.6268 | 0.4391 | 15 | 0.7500 | 0.3001 | 0.5817 |
| 16 | 0.7525 | 0.3130 | 0.5764 | 0.1060 | 0.6047 | 0.4498 | 16 | 0.7525 | 0.2956 | 0.5876 |
| 17 18 | 0.7900 | 0.2965 | 0.5839 | 0.4010 | 0.5130 | 0.4917 | 18 | 0.7900 | 0.2671 | 0.5952 |
| 19 | 0.8025 | 0.3610 | 0.5554 | 0.6010 | 0.4444 | 0.5751 | 19 | 0.8025 | 0.3301 | 0.5693 |
| 50 | 9.6500 | -0.5152 | 0.0202 | 1.0000 | -0.0316 | 0.7122 | | 0.0.00 | 0 | 0.000 |
| | | | | | 0.0310 | 0.1122 | | | | |
| Run 2 | | SECTION | | Run 240 | FLA | , | Run 2 | | SECTION | |
| NR | X/L SURFACE | CP | HS ML | | FLAI | | NR | 41 X/L SURFACE | CP | HS ML |
| NR UPPER 1 | SURFACE 0.0 | 1.1600 | ML 0.0 | Run 240 X/L UPPER S | FLAI CP URFACE 0.6600 | ML 0.4620 | NR UPPER 1 | X/L SURFACE 0.0 | CP 1.1061 | ML 0.1338 |
| NR UPPER | X/L SURFACE | CP | ML 0.0 0.4196 0.6047 | Run 240 X/L UPPER S | FLAI CP URFACE | , ML | NR UPPER | X/L SURFACE | CP | ML |
| NR UPPER 1 2 3 | X/L SURFACE 0.0 0.0022 0.0087 0.0155 | 1.1600 0.7392 0.3592 0.1628 | ML 0.0 0.4196 0.6047 0.6907 | Run 240 X/L UPPER S 0.0 0.0130 0.0440 0.1040 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 | ML 0.4620 0.9951 0.8544 0.8346 | NR UPPER 1 2 3 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 | 1.10£1 0.2799 -0.1343 -0.2641 | ML 0.1238 0.6404 0.8175 0.8721 |
| NR UPPER 1 2 3 4 5 6 | X/L SURFACE 0.0 0.0022 0.0087 0.0155 0.0250 0.0345 | 1.1600 0.7392 0.3592 0.1628 -0.0588 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 | Run 240 X/L UPPER S 0.0 0.0130 0.0440 0.1040 0.1640 0.2480 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 | ML 0.4620 0.9951 0.8544 0.8346 1.0269 | NR UPPER 1 2 3 4 5 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 | 1.1081 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 | ML 0.1238 0.6404 0.8175 0.8721 0.9549 1.0446 |
| NR UPPER 1 2 3 4 5 6 7 | X/L SURFACE 0.0 0.0022 0.0087 0.0155 0.0250 0.0345 0.0645 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 | Run 240 X/L UPPER S 0.0130 0.0440 0.1040 0.1640 0.2480 0.3300 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6155 | ML 0.4620 0.9951 0.8544 0.8346 1.0267 1.0267 | NR UPPER 1 2 3 4 5 6 7 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 | 1.1081 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 -0.8930 | ML 0.1238 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 |
| NR UPPER 1 2 3 4 5 6 7 8 9 | X/L SURFACE 0.0 0.00?2 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 | ML 0.0 0.4196 0.6047 0.7850 0.8691 0.9849 1.0557 1.0948 | Run 240 X/L UPPER S 0.0130 0.0140 0.1040 0.1640 0.2480 0.3300 0.4100 0.5770 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 -1.1281 -1.9843 -0.2749 | 0.4620 0.9951 0.8544 0.8346 1.0269 1.0267 1.2799 1.2557 0.8768 | NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.0032 0.6087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 | 1.1081 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 | ML 0.1238 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2703 |
| NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.00?2 0.0087 0.0155 0.0250 0.0345 0.0645 0.6797 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 -0.7756 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0557 | Run 240 X/L UPPER S 0.0130 0.0440 0.1640 0.1640 0.2480 0.4300 0.4500 0.5770 0.7380 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 -1.1281 -1.0843 -0.2749 -0.0264 | ML 0.4620 0.9951 0.8544 0.8346 1.0267 1.2799 1.2557 0.8768 0.7713 | NR UPPER 1 2 3 4 5 6 7 8 9 | X/L SURFACE 0.6 0.0032 0.6087 0.0155 0.0250 0.6245 0.0645 0.0797 0.0990 0.1400 | 1.1081 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1368 | ML 0.1339 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2833 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 | X/L SURFACE 0.0 0.0022 0.0087 0.0155 0.0250 0.0345 0.0645 0.6797 0.6990 0.1400 0.1700 0.2200 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 -0.7756 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0557 1.0948 1.1057 1.1052 | Run 240 X/L UPPER S 0.0130 0.0140 0.1040 0.1640 0.2480 0.3300 0.4100 0.5770 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 -1.1281 -1.9843 -0.2749 | 0.4620 0.9951 0.8544 0.8346 1.0269 1.0267 1.2799 1.2557 0.8768 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0445 0.0490 0.1700 0.1700 0.2200 | 1.1061 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1368 -1.1533 -1.1600 | ML 0.1238 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2833 1.2928 1.2976 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 | X/L SURFACE 0.0 0.0072 0.0087 0.0155 0.0250 0.0345 0.0645 0.6797 0.6990 0.1400 0.1700 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 -0.77862 -0.7862 -0.7395 | ML 0.0 0.4196 0.6047 0.7850 0.8691 0.9849 1.0557 1.0948 1.1007 1.1052 | Run 240 X/L UPPER S 0.0 0.0130 0.0440 0.1640 0.2480 0.2480 0.4100 0.5770 0.7380 0.900 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 -1.1281 -1.0943 -0.2749 -0.0264 0.103° 0.1741 | ML 0.4620 0.9951 0.8544 0.8346 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 0.1400 0.1700 0.2200 0.2595 | 1.1081 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1368 -1.1533 -1.1600 -1.1642 | ML 0.1238 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2833 1.2928 1.2976 1.3015 |
| NR UPPER 1 2 3 4 4 5 5 6 7 8 9 9 10 11 12 13 14 15 | X/L SURFACE 0.0 0.0022 0.0087 0.0155 0.0250 0.0345 0.0797 0.6990 0.1700 0.2200 0.2595 0.2995 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.57930 -0.7625 -0.7756 -0.7862 -0.77647 -0.7395 -0.7920 -0.8106 | ML 0.0 0.4196 0.6047 0.7850 0.8691 0.9849 1.0557 1.0948 1.0948 1.0842 1.0948 1.0842 1.1072 | Run 240 X/L UPPER S 0.0130 0.0440 0.1040 0.1640 0.2480 0.3300 0.4570 0.5770 0.7380 0.9000 1.0000 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 -1.281 -1.9843 -0.274 0.1731 URFACE 0.6500 | ML 0.4620 0.9951 0.8544 0.8346 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | X/L SURFACE 0.6 0.0032 0.0037 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 0.1400 0.2200 0.2565 0.2565 0.2595 | 1.10£1 0.2799 -0.1343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1368 -1.1533 -1.1660 -1.1642 -1.1852 -1.1852 | ML 0.1239 0.6404 0.8175 0.875 0.875 0.9549 1.0446 1.1547 1.2243 1.2703 1.2833 1.2833 1.2976 1.3015 1.3134 1.3173 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | X/L SURFACE 0.0 0.0022 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.1400 0.1700 0.2200 0.2595 0.2995 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 -0.77862 -0.7862 -0.7395 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0557 1.0948 1.1007 1.1052 1.0948 1.0842 1.1083 | Run 240 X/L UPPER S 0.01 30 0.01400 0.10400 0.1640 0.2480 0.3300 0.5770 0.7380 0.9900 1.0000 LOWER S 0.0160 | FLAT CP URFACE 0.6600 -0.2217 -0.1751 -0.6155 -0.6144 -1.1281 -1.0943 -0.2749 -0.0264 0.1038 0.1741 | ML 0.4620 0.9951 0.8544 1.0269 1.2799 1. | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 0.1400 0.1700 0.2200 0.22595 0.2595 | 1.1081 0.279 -0.1343 -0.2641 -0.4569 -0.6591 -0.8591 -1.1144 -1.1368 -1.1533 -1.1602 -1.1852 -1.1852 -1.1926 | ML 0.1238 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2833 1.2928 1.2976 1.3134 |
| NR UPPER 1 2 3 4 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 | X/L SURFACE 0.0 0.0022 0.0087 0.0250 0.0250 0.0445 0.0797 0.1400 0.1700 0.2200 0.2200 0.2595 0.2595 0.2595 0.2595 0.2995 0.3897 0.3800 0.4600 | CP 1.1600 0.7392 0.3592 0.1628 0.0588 0.2570 -0.5230 -0.6790 -0.7625 -0.7756 -0.7862 -0.7647 -0.7395 -0.7920 -0.8194 -0.8199 -0.8195 | ML 0.0 0.4196 0.6907 0.7850 0.8691 1.0957 1.0948 1.0948 1.1072 1.1083 1.1172 1.1263 1.1272 1.1217 | Run 240 X/L UPPER S 0.01 30 0.01400 0.1640 0.1640 0.3300 0.4100 0.5770 0.7380 0.9900 1.9000 1.0000 | FLAI CP URFACE 0.6600 -0.2546 -0.1751 -0.6155 -0.6145 -1.1281 -1.9843 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6347 0.6019 | ML 0.4620 0.9951 0.8544 1.0269 1.2799 1.2757 0.8768 0.7713 0.7164 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0797 0.1400 0.1700 0.2200 0.2200 0.2255 0.2957 0.3957 0.3957 0.3957 0.3967 | 1.1081 0.27943 -0.1343 -0.2641 -0.45691 -0.6591 -1.0296 -1.1144 -1.1533 -1.1642 -1.1852 -1.1852 -1.1983 -1.1983 -1.1983 | ML 0.1239 0.6404 0.8171 0.9759 1.0446 1.2703 1.2833 1.2928 1.2976 1.3174 1.3173 1.3144 1.3124 1.3148 |
| NR UPPER 1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 | X/L SURFACE 0.0 0.032 0.0087 0.0155 0.0250 0.0345 0.6797 0.0990 0.1400 0.1700 0.2595 0.2995 0.2995 0.3997 0.3800 0.4600 0.5295 | CP 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 -0.7756 -0.7862 -0.7395 -0.7920 -0.8106 -0.8294 -0.8155 -0.8491 -0.8155 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.1052 1.0948 1.1072 1.1082 1.1172 1.1263 1.1173 1.121361 1.1361 | Run 240 X/L UPPER S 0.0 0.0130 0.0440 0.1640 0.2480 0.3300 0.4100 0.7380 0.9000 1.0000 1.0000 LOWER S 0.01660 0.0160 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6154 -1.281 -1.9843 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6500 1.0000 0.6347 0.6019 0.5508 | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 | X/L 0.0 0.0032 0.0037 0.0155 0.0250 0.0250 0.0250 0.0457 0.0290 0.1700 0.1700 0.2200 0.2200 0.2200 0.2595 0.295 | 1.10E1 0.2799 0.1343 0.2641 0.4569 -0.6591 -0.8930 -1.0296 -1.11468 -1.1533 -1.1660 -1.1642 -1.1852 -1.1926 -1.2185 -1.1926 -1.2183 -1.1944 -1.2196 | ML 0.1239 0.6404 0.8175 0.6721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2928 1.2976 1.3015 1.3134 1.31173 1.3214 1.3118 |
| NR UPPER 1 2 3 3 4 4 5 5 6 7 7 8 9 111 112 113 114 115 116 117 118 119 200 21 | X/L SUBFACE 0.0 0.0022 0.0087 0.0155 0.0250 0.0345 0.0747 0.6990 0.1700 0.1700 0.2595 0.2595 0.3397 0.3397 0.3397 0.4600 0.4600 0.5000 0.5000 0.5000 | CP 1.1600 0.7392 0.3592 0.1628 -0.0558 -0.0558 -0.6790 -0.7625 -0.7756 -0.7766 -0.7862 -0.77647 -0.7395 -0.7920 -0.8106 -0.8199 -0.8194 -0.8194 -0.8197 -0.88931 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 1.0557 1.0948 1.1052 1.1052 1.1052 1.1172 1.1267 1.1267 1.1267 1.1267 1.1361 1.1563 | Run 240 X/L UPPER S 0.0130 0.01400 0.1640 0.2480 0.4100 0.5770 0.7380 0.9000 1.0000 1.0000 1.0000 0.0440 0.0440 0.0440 0.0460 0.2530 0.4010 0.6010 | FLAI CP URFACE 0.6600 -0.54600 -0.2217 -0.1751 -0.6155 -0.6144 -1.1281 -1.9842 -0.2749 -0.0264 0.1032 0.1741 URFACE 0.6500 1.0000 0.6347 0.6019 0.5508 0.5750 0.4772 | ML 0.4620 0.9951 0.8544 1.0267 1.2799 1.2557 0.8769 0.7713 0.7164 0.6854 0.4620 0.2489 0.4745 0.4620 0.5160 0.5183 0.5599 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 | X/L 0.0 0.0032 0.0037 0.0155 0.0255 0.0255 0.0257 0.0490 0.1797 0.0990 0.1790 0.2200 0.2595 0.2595 0.3397 0.3907 0.4200 0.4600 0.5905 0.5905 0.3907 0.4500 0.5900 0.5900 0.3907 0.4007 0.40 | 1.10E1 0.2799 0.1343 0.2641 0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1368 -1.1533 -1.1600 -1.1642 -1.1852 -1.1926 -1.218 -1.2198 -1.2198 -1.2198 | ML 0.1238 0.6404 0.8175 0.8771 0.9549 1.0446 1.1547 1.2243 1.2703 1.2923 1.2928 1.2976 1.3015 1.3134 1.3138 1.3148 |
| NR UPPER 1 2 2 3 3 4 5 5 6 7 7 8 9 10 11 11 12 13 14 15 16 17 18 19 20 21 22 23 | X/L SUBFACE 0.0 0.0022 0.0087 0.0155 0.0256 0.0345 0.0797 0.6990 0.1400 0.1700 0.2595 | CP 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5230 -0.6790 -0.7625 -0.7756 -0.7862 -0.7647 -0.7395 -0.7920 -0.8199 -0.8199 -0.8195 -0.8931 -0.8931 -0.8931 -0.9013 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.9869 1.0557 1.0948 1.1052 1.1092 1.1172 1.127 1.1217 1.1361 1.1563 1.1563 1.1563 | Run 240 X/L UPPER S 0.0130 0.01400 0.1640 0.1640 0.2480 0.3770 0.7380 0.4100 0.9000 1.0000 LOWFR S 0.0160 0.0440 0.02530 0.0160 0.2530 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6154 -1.281 -1.9843 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6500 1.0000 0.6347 0.6019 0.5508 | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 0.6854 | NR UPPER 1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0250 0.0757 0.090 0.1400 0.1700 0.2200 0.2505 0.2505 0.2505 0.265 0.265 0.265 0.265 0.2757 0.3800 0.4600 0.4600 0.5305 | 1.1081 0.27343 -0.1343 -0.2641 -0.45691 -0.6591 -1.0296 -1.1144 -1.1533 -1.1642 -1.1852 -1.1983 -1.1984 -1.1983 -1.1944 -1.2196 -1.2503 -1.2741 -1.3730 -1.37323 | ML 0.1239 0.6404 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2293 1.2928 1.2976 1.3015 1.3114 1.3114 1.3182 1.3114 1.3182 |
| NR UPPER 1 2 3 4 5 6 7 7 8 9 9 10 11 12 13 11 5 16 17 18 19 20 21 2 2 2 3 2 4 | X/L SURFACE 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | CP 1.1600 0.7392 0.3592 0.1628 -0.0568 -0.2570 -0.7625 -0.7756 -0.7765 -0.77647 -0.7862 -0.7647 -0.7395 -0.77647 -0.7395 -0.77647 -0.8196 -0.8 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9648 1.1052 1.1052 1.1072 1.1263 1.1217 1.1263 1.1217 1.1543 1.1563 1.1563 1.1563 1.1669 1.1962 1.1962 | Run 240 X/L VPPER S 0.0 0.0130 0.01440 0.1640 0.2480 0.3300 0.4100 0.7380 0.9000 1.0000 1.0000 0.0601 0.0601 0.6010 0.6010 0.6010 0.6010 0.6010 0.6010 0.6010 0.6010 0.6010 0.6010 | FLAI CP URFACE 0.6600 -0.2217 -0.1751 -0.6155 -0.6144 -1.281 -1.984 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6600 1.0000 0.6347 0.6019 0.5500 0.5250 0.4772 0.3822 0.1741 | ML 0.4620 0.9951 0.8544 0.8346 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 0.6854 0.4620 0.2489 0.4745 0.4910 0.5283 0.5508 | NR UPPER 1 2 3 4 4 5 6 7 8 9 101 11 12 13 14 15 16 17 18 19 20 21 22 22 24 | X/L 0.0032 0.0032 0.0035 0.0250 0.0250 0.0255 0.0245 0.0645 0.0797 0.0990 0.1400 0.1700 0.2700 0.2595 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 | 1.10E1 0.2759 0.1343 -0.2641 -0.4569 -0.6591 -1.1368 -1.1533 -1.1600 -1.1642 -1.1926 -1.2018 -1.2018 -1.2196 -1.2196 -1.2196 -1.2503 -1.2503 -1.3030 -1.3523 -1.3523 -1.3523 -1.3523 -1.3523 -1.3523 -1.3523 -1.3523 -1.3523 | ML 0.1239 0.64075 0.8175 0.8771 0.9549 1.0446 1.1547 1.2243 1.2703 1.2028 1.2703 1.2028 1.3134 1.3134 1.3134 1.3148 1.3148 1.3291 1.3464 1.3405 1 |
| NR UPPER 1 2 3 4 5 6 7 7 8 9 10 112 13 14 15 16 7 18 20 21 22 23 24 25 26 | X/L SURFACE 0.00 | CP 1.1600 0.7392 0.3592 0.1628 -0.05588 -0.05588 -0.05790 -0.7625 -0.7766 -0.7862 -0.77647 -0.7395 -0.77920 -0.8106 -0.8294 -0.8191 -0.8916 -0.8931 -0.9857 -1.0879 -1.0879 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0057 1.1052 1.1072 1.1082 1.1082 1.1172 1.1263 1.1263 1.156 | Run 240 X/L VPPER S 0.0 0.0130 0.0440 0.1640 0.2480 0.4100 0.5770 0.7380 0.9000 1.0000 LOWER S 0.0 0.0160 0.05530 0.4010 0.6010 0.6050 1.0000 Run 241 X/L | FLAI CP URFACE 0.6600 -0.2217 -0.1751 -0.6155 -0.6144 -1.281 -1.0943 -0.2749 -0.264 0.103* 0.1741 URFACE 0.6500 1.0000 0.6347 0.6019 0.5508 0.5720 0.3822 0.1741 FLA | ML 0.4620 0.9951 0.8544 0.8346 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 0.6854 0.4620 0.2489 0.4745 0.4910 0.5283 0.5508 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 22 22 22 22 22 22 | X/L 0.0032 0.0032 0.0035 0.0250 0.0255 0.0255 0.0255 0.0797 0.0990 0.1400 0.1700 0.1700 0.2595 0.269 | 1.10E1 0.2759 0.1343 -0.2641 -0.4569 -0.6591 -1.0296 -1.1144 -1.1533 -1.1600 -1.1642 -1.1926 -1.2018 -1.2018 -1.2196 -1.2196 -1.2196 -1.2503 - | ML 0.1239 0.64075 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2226 1.3127 1.3124 1.4151 1.4451 1.4454 |
| NR UPPER 1 2 3 3 4 5 6 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 | X/L SURFACE 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | CP 1.1600 0.7392 0.3592 0.1628 -0.0568 -0.2570 -0.5230 -0.6790 -0.7625 -0.7756 -0.7862 -0.7647 -0.7395 -0.7920 -0.8199 -0.8195 -0.8199 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.1052 1.1092 1.1092 1.1172 1.1262 1.1272 1.1263 1.156 | Run 240 X/L UPPER S 0.01 30 0.01440 0.1640 0.3300 0.4100 0.5770 0.7380 0.9900 1.0000 LOWER S 0.0160 0.0450 0.0160 0.2530 0.4010 | FLAI OPEN OF THE PROPERTY OF | ML 0.4620 0.9951 0.8544 1.0269 1.0269 1.2759 0.713 0.7164 0.6854 0.4620 0.2489 0.4745 0.5283 0.5508 0.5940 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 22 22 22 22 22 22 | X/L 0.00 0.0032 0.0032 0.0035 0.0250 0.0250 0.0250 0.0257 0.0090 0.1400 0.1700 0.2505 0.2995 | 1.10£1 0.27343 -0.2641 -0.4569 -0.6591 -1.0296 -1.1144 -1.1368 -1.1533 -1.1602 -1.1602 -1.1926 -1.2018 -1.2196 -1.2196 -1.2740 -1.2741 -1.2741 -1.2741 -1.2742 -1.3742 | ML 0.1238 0.64075 0.8175 0.8721 0.9549 1.0446 1.1547 1.2033 1.2028 1.2033 1.2028 1.3134 1.3134 1.3148 1.3148 1.3148 1.3281 1.3148 1.3281 1.3484 1.4451 1.4451 1.4451 1.4451 1.4451 1.4451 1.4464 1.4484 |
| NR UPPER 1 2 3 4 5 6 6 7 7 8 9 9 10 11 12 13 11 15 16 17 18 19 20 21 22 23 24 25 26 27 28 LOWER | X/L SURFACE 0.0 0.002 0.0025 0.0037 0.0155 0.0250 0.0345 0.0797 0.0990 0.1400 0.1700 0.2595 0.2995 0.3397 0.3800 0.4200 0.5209 0.4600 0.5209 0.4600 0.5209 0.4600 0.5205 0.5295 0.5795 0.6500 0.7600 | 1.1600 0.7392 0.3592 0.1628 -0.0588 -0.2570 -0.5790 -0.7625 -0.7756 -0.7862 -0.7647 -0.7395 -0.77647 -0.8199 - | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9848 1.1052 1.1052 1.1072 1.1263 1.126 | Run 240 X/L UPPER S 0.0130 0.0440 0.1640 0.2480 0.3770 0.7380 0.9900 1.9000 LOWFR S 0.0 0.0460 0.2530 0.0601 0.6010 0.8050 1.9000 Run 241 X/L UPPER S 0.0 0.0150 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6154 -1.281 -1.281 -1.281 -1.281 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6503 0.6547 0.6019 0.5506 0.5250 0.4772 0.3822 0.1741 FLA CP | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.7164 0.6854 0.4620 0.2489 0.4745 0.5160 0.5983 0.5984 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 24 25 6 27 C B C C C C C C C C C C C C C C C C C | X/L 0.0032 0.0032 0.00387 0.0155 0.0250 0.0245 0.06457 0.0990 0.1400 0.1700 0.2505 0.2555 0.2555 0.2557 0.3800 0.4200 0.5305 0.5000 | 1.10£1 0.279 0.1343 -0.2641 -0.4569 -0.6591 -1.0296 -1.1144 -1.1533 -1.1600 -1.1642 -1.1926 -1.2018 -1.1926 -1.2194 -1.2194 -1.2503 -1.2741 -1 | ML 0.1238 0.64075 0.8175 0.8771 0.9549 1.0446 1.1547 1.2243 1.2703 1.2028 1.2028 1.3134 1.3134 1.3134 1.3134 1.3134 1.3148 1.3148 1.3148 1.3464 1.4510 1 |
| NR UPPER 1 2 3 4 5 6 6 7 7 8 9 10 112 13 14 15 16 17 8 19 20 21 22 3 24 25 26 27 28 EAUTH | X/L SUBFACE 0.0032 0.0037 0.0155 0.0250 0.0345 0.0646 0.0750 0.1400 0.1700 0.1200 0.2995 0.3397 0.2995 0.3397 0.4600 0.5000 0.5000 0.5000 0.7505 0.6600 0.7505 0.7815 0.86500 0.7505 0.86500 0.7505 0.86500 0.7505 0.86500 0.7505 0.86500 0.7505 0.86500 0.7505 0.86500 0.7505 0.86500 0.7505 | 1.1600 0.7392 0.3592 0.1628 -0.0558 -0.0558 -0.05790 -0.7625 -0.7756 -0.77862 -0.77667 -0.7395 -0.7920 -0.8106 -0.8294 -2.8199 -0.8155 -0.9891 -0.9857 -0.9857 -0.9013 -0.9013 -0.9013 -0.9013 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.057 1.1052 1.1077 1.1052 1.1172 1.1217 1.1217 1.1361 1.1563 1.1563 1.1563 1.1569 0.962 1.2622 1.2622 1.2622 1.2622 1.2622 1.2622 1.2632 | Run 240 X/L UPPER S 0.0130 0.01400 0.1640 0.2480 0.3300 0.5770 0.7380 0.9000 1.0000 LOWER S 0.0400 0.0460 0.0460 0.0460 0.0460 0.0460 0.0605 0.06060 0.0605 0.06060 0.0605 0.06060 0.0605 0.06060 0.0605 0.06060 0.0605 0.06060 0.0605 0.06060 0.0605 0.0605 0.0605 0.06060 0.0605 0.0605 0.06060 0.0605 0.0605 0.0605 0.0605 0.06060 | FLAI CP URFACE 0.6600 -0.5460 -0.2217 -0.1751 -0.6155 -0.6144 -1.281 -1.0942 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6500 1.0000 0.6347 0.5508 0.5250 0.4772 0.3822 0.1741 | 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.7713 0.7164 0.6854 0.4620 0.2489 0.4745 0.4745 0.5160 0.5283 0.5590 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 17 18 19 20 21 22 22 22 22 24 25 26 27 28 LOWER 1 | X/L 0.0032 0.0032 0.0037 0.0155 0.0250 0.0245 0.0757 0.0290 0.1400 0.1700 0.2200 0.2595 0.3987 0.4000 0.5000 0.5000 0.5000 0.5000 0.7000 0.7525 0.7415 0.8255 0.8255 0.8255 0.8255 | 1.10E1 0.2799 0.1343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1333 -1.1600 -1.1642 -1.1852 -1.1983 -1.1983 -1.1983 -1.2741 -1.2741 -1.3730 -1.2741 -1.3730 -1.37523 -1.4127 -1.1392 -0.8701 -0.7794 -0.7577 | ML 0.1238 0.64075 0.8175 0.87721 0.9549 1.0446 1.1547 1.2243 1.2273 1.2273 1.2078 1.3124 1.3124 1.3182 1.4105 |
| NR UPPER 1 2 3 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 22 4 25 26 27 28 LOWER 2 3 | X/L SURFACE 0.0 0.0027 0.0155 0.0250 0.0345 0.0797 0.01990 0.1700 0.2595 0.2995 0.2995 0.2995 0.2995 0.3397 0.3800 0.4200 0.4200 0.4500 0.5295 0.4981 0.6600 0.7525 0.7815 0.8275 | 1.1600 0.7392 0.3592 0.1628 -0.0558 -0.0558 -0.05790 -0.7625 -0.7756 -0.7756 -0.77862 -0.77647 -0.7395 -0.7920 -0.8106 -0.8294 -0.8195 -0.9857 -0.9857 -0.9013 -0.6916 -0.4016 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.9849 1.0557 1.0948 1.1007 1.1092 1.1092 1.1172 1.1262 1.1175 1.1361 1.1563 1.1564 1.1563 1.1564 1.156 | Run 240 X/L UPPER S 0.01 0.0130 0.0440 0.1640 0.2480 0.3300 0.5770 0.7380 0.9900 1.0000 LOWFR S 0.00440 0.2530 0.4010 0.8050 1.0000 Run 241 X/L UPPER S 0.0640 0.2530 0.4010 0.8050 1.0000 | FLAI CP URFACE 0.6600 -0.2546 -0.2217 -0.1751 -0.6154 -1.9843 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6500 0.5250 0.4772 0.3822 0.1741 FLA FLA FLA FLA FLA FLA FLA FL | ML 0.4620 0.9951 0.8544 1.0269 1.0269 1.2799 1.2557 0.8768 0.7713 0.1164 0.6854 0.4620 0.2489 0.4745 0.4745 0.5160 0.5283 0.5508 0.57940 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 24 25 6 27 C B C C C C C C C C C C C C C C C C C | X/L 0.00 0.0032 0.0035 0.0250 0.0250 0.0250 0.0250 0.0250 0.1700 0.1700 0.2505 0.2957 0.3967 | 1.1081 0.27343 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1144 -1.1533 -1.1642 -1.1852 -1.1926 -1.2018 -1.2196 -1.2741 -1.3037 -1.4037 | ML 0.1239 0.64075 0.8175 0.8721 0.9549 1.0446 1.1547 1.2028 1.2028 1.2028 1.2033 1.2028 1.3015 1.3134 1.3134 1.3134 1.3148 1.3281 1.3148 1.3281 1.3486 1 |
| NR UPPER 1 2 3 3 4 5 6 6 7 7 8 9 9 10 11 12 13 14 15 16 7 18 9 20 21 22 23 24 25 26 27 28 LOWER 1 2 | X/L SURFACE 0.0 0.032 0.0087 0.0155 0.0450 0.0250 0.0345 0.0797 0.0990 0.1400 0.2200 0.2595 0.2595 0.2595 0.2595 0.2595 0.2795 0.2995 0.3397 0.3800 0.4600 0.5305 0.5795 0.4500 0.7000 0.7525 0.45500 0.7000 0.7525 0.45500 0.6000 0.7525 0.45500 0.6000 0.7000 | CP 1.1600 0.7392 0.1628 -0.0568 -0.0558 -0.05790 -0.7625 -0.7766 -0.7862 -0.7647 -0.7395 -0.7790 -0.8195 -0.7821 -0.8294 -0.8194 -0.8199 -0.8195 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 -0.8931 -0.9857 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.1052 1.1052 1.10948 1.10948 1.10948 1.10948 1.1263 1 | Run 240 X/L UPPER S 0.01 30 0.01400 0.1640 0.2480 0.3300 0.5770 0.7380 0.9900 1.9000 | FLAI O-6600 -0-247 -0-1751 -0-6154 -1-1281 -1-0943 -0-2749 -0-0264 0-1039 0-1741 URFACE 0-6037 0-1741 FLA SUPFACE 0-707 -0-3125 -0-1741 FLA FLA FLA FLA FLA FLA FLA FL | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.1164 0.6854 0.4620 0.2489 0.4745 0.5160 0.5283 0.57940 0.57940 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 114 115 117 18 19 20 21 22 22 22 24 5 27 CMER 1 2 2 8 CMER 1 | X/L 0.00 0.0032 0.00387 0.0155 0.0250 0.0250 0.0250 0.0245 0.06457 0.0990 0.1400 0.1700 0.2595 0.299 | 1.10£1 0.2794 0.2794 0.2641 0.4569 0.6591 0.10296 0.1.1144 0.11533 0.1.1600 0.1.1642 0.1.1852 0.1.2018 | ML 0.1238 0.64075 0.8175 0.8771 0.9549 1.0446 1.1547 1.2243 1.2703 1.228 1.2703 1.228 1.3134 1.3134 1.3134 1.3148 1.3148 1.3464 1.3 |
| NR UPPER 1 2 3 4 5 6 6 7 7 8 9 10 112 13 14 15 116 117 118 12 2 2 3 2 4 2 2 5 2 6 2 7 7 8 LOWER 1 2 3 4 4 5 5 6 | X/L SURFACE 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0. | 1.1600 0.7392 0.3592 0.1628 -0.0558 -0.0558 -0.05790 -0.7625 -0.7625 -0.7766 -0.7862 -0.7647 -0.7395 -0.7920 -0.8155 -0.8199 -0.8199 - | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.00557 1.1052 1.1072 1.1082 1.1082 1.1172 1.1263 1.1263 1.1263 1.1563 1.1563 1.1563 1.1563 1.1569 0.9522 0.9042 0.04460 0.6199 0.7436 0.8364 0.8364 | Run 240 X/L UPPER S 0.0130 0.01400 0.1640 0.2480 0.3300 0.4100 0.5770 0.7380 0.9000 1.0000 1.0000 1.0000 1.0000 Run 241 UPPER S 0.0 0.0440 0.1640 0.2530 0.4010 0.8050 1.0000 Run 241 UPPER S 0.0 3.0130 0.4010 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 0.7640 | PLAID OF THE PLAID | ML 0.4620 0.9951 0.8544 1.0267 1.2799 1.25576 0.7713 0.7164 0.6854 0.4620 0.2489 0.4745 0.5160 0.5283 0.5590 0.6854 ML 0.4369 0.4769 0.8598 0.8599 1.0471 1.0730 0.9469 | NR UPPER 1 2 3 4 5 6 7 8 9 10 112 13 14 15 16 17 18 19 20 22 22 22 22 22 24 5 6 27 28 6 0 MER | X/L 0.0032 0.0032 0.0035 0.0250 0.0250 0.0245 0.0767 0.0950 0.1400 0.1700 0.2565 0.2665 0.2665 0.2665 0.2665 0.2767 0.2900 0.26600 0.26600 0.26600 0.26600 0.26600 0.26600 0.26600 0.26600 0.26600 0.26600 0.26765 0.2675 0 | 1.10E1 0.2799 0.1343 0.2641 0.4569 -0.4569 -0.8930 -1.0296 -1.11468 -1.1533 -1.1660 -1.1642 -1.1852 -1.1928 -1.1928 -1.1944 -1.2703 -1.1944 -1.2703 -1.2741 -1.3730 -1.3730 -1.3730 -1.3750 -1 | ML 0.1238 0.64075 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2733 1.2928 1.2773 1.3124 1.3124 1.3124 1.3124 1.3182 1.3148 1.3182 1.3148 1.3182 1.3148 1.3182 1.3148 1.3182 1 |
| NR UPPER 1 2 3 4 5 6 7 7 8 9 100 112 13 14 15 16 17 18 19 20 22 23 24 25 26 27 28 ELOWER 1 2 3 4 5 6 7 7 8 | X/L SURFACE 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0. | CP 1.1600 0.7392 0.1628 -0.0558 -0.0558 -0.0558 -0.05790 -0.7625 -0.7765 -0.7862 -0.7766 -0.7862 -0.7862 -0.7869 -0.8199 -0.81 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0057 1.1052 1.1072 1.1172 1. | Run 240 X/L 1 | FLAI CP URFACE 0.6600 -0.2217 -0.1751 -0.6154 -1.1281 -1.0843 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6500 0.6347 0.5508 0.55508 0.4772 0.3822 0.1741 | ML 0.4620 0.9951 0.8544 1.0267 1.2799 1.27579 1.27579 0.7116 0.7713 0.6854 0.4620 0.2489 0.4745 0.4620 0.55289 0.5940 0.5940 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 19 22 22 22 22 22 22 24 5 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 | X/L 0.0032 0.0032 0.0035 0.0250 0.0250 0.0245 0.0797 0.0990 0.1400 0.1700 0.2595 0.3997 0.4200 0.4200 0.5995 0.3997 0.6000 0.5995 0.3997 0.6000 0.7900 | 1.10E1 0.2799 0.1343 -0.2641 -0.4569 -0.6591 -1.0296 -1.11468 -1.1533 -1.1600 -1.1642 -1.1852 -1.1983 -1.1983 -1.1983 -1.1983 -1.1983 -1.2741 -1.2741 -1.2753 -1.2741 -1.2753 -1.2741 -1.2753 -1.2741 -1.2753 -1.2753 -1.2753 -1.2761 | ML 0.1238 0.64075 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2228 1.2733 1.2028 1.3124 1.3182 1 |
| NR UPPER 1 2 3 4 5 6 6 7 8 9 9 10 11 12 13 14 15 16 7 18 19 20 21 22 23 24 25 6 27 28 LOWER 1 2 3 4 5 6 6 7 8 9 | X/L SURFACE 0.0 0.032 0.0037 0.0155 0.0250 0.0345 0.046 0.0797 0.01990 0.1400 0.1700 0.2200 0.2295 0.2995 0.4600 0.7525 0.57815 0.8275 0.000 0.17815 0.8275 0.000 0.00032 0.0070 0.00032 0.0070 0.00487 0.00487 | CP 1.1600 0.7392 0.1628 -0.0568 -0.2570 -0.5230 -0.6790 -0.7625 -0.7764 -0.7862 -0.7647 -0.7899 -0.8155 -0.7999 -0.8155 -0.98491 -0.8199 -0.8155 -0.9857 | ML 0.0 0.4196 0.6047 0.6907 0.6907 0.7850 0.8691 0.9049 1.1052 1.1052 1.1074 1.1172 1.1263 1.1263 1.1263 1.1263 1.1263 1.1263 1.1263 1.1263 0.9042 0.004460 0.9522 0.9042 0.004460 0.8068 0.8068 0.8068 0.8068 | Run 240 X/L UPPER S 0.0130 0.0440 0.1640 0.2480 0.3700 0.4100 0.5770 0.7380 0.9000 1.0000 LOWFR S 0.0 0.0160 0.2530 0.0160 0.2530 0.4010 0.8050 1.0000 Run 241 X/L UPPER S 0.0 0.0440 0.1640 0.1650 0.1060 0.1060 0.1060 0.2530 0.2530 0.2530 0.1060 0.2530 0 | FLAI CP URFACE 0.6600 -0.217 -0.1751 -0.6154 -1.281 -1.281 -1.281 -1.281 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6009 0.6520 0.4772 0.6019 0.5506 0.5250 0.4772 0.1741 FLA CP CP CP CP CP CP CP CP CP C | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.7164 0.6854 0.4620 0.2489 0.4745 0.5160 0.5930 0.6854 P ML 0.4369 0.8469 0.9798 0.8469 0.9798 1.2615 1.0130 0.9469 0.7620 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 114 115 117 18 19 20 22 22 22 24 5 27 COWER 1 2 3 4 5 6 7 8 9 | X/L 0.0 0.0032 0.0032 0.0035 0.0250 0.0250 0.0245 0.0645 0.0645 0.0797 0.0990 0.1700 0.1700 0.2595 | 1.10E1 0.2799 0.1343 -0.2641 -0.4569 -0.6591 -1.10296 -1.11448 -1.1533 -1.1642 -1.1826 -1.2018 -1.2018 -1.2196 -1.2196 -1.2196 -1.2503 | ML 0.1238 0.64075 0.8175 0.87721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2228 1.2703 1.2228 1.3134 1.3131 1.3143 1.3148 1.3486 1.3497 1.4510 1.5410 |
| NR UPPER 1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 6 27 28 LOWER 1 2 3 4 5 6 6 7 8 9 110 111 | X/L SURFACE 0.0 0.032 0.0037 0.0155 0.0250 0.0345 0.0797 0.0196 0.1700 0.1700 0.1700 0.2200 0.3397 0.3397 0.3800 0.4200 0.4200 0.4200 0.5000 0.5295 0.2995 0.4000 0.5505 0.5795 0.5000 0.5505 0.6000 0.7525 0.6000 | CP 1.1600 0.7392 0.1628 -0.05588 -0.05588 -0.05588 -0.05590 -0.7625 -0.7765 -0.7862 -0.7647 -0.7395 -0.77920 -0.8196 -0.8294 -0.81994 -0.81994 -0.81995 -0.8915 -0.9857 -1.0879 -0.8155 -1.0975 -1.0879 -0.68916 -0.4244 -1.1600 -0.6898 -0.1762 -0.2022 -0.2022 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0057 1.1052 1.1072 1.1082 1.1082 1.1082 1.1263 1.1263 1.1563 1.1563 1.1563 1.1569 0.9522 0.9042 0.04460 0.8364 0.8464 0.8474 0.8487 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 0.98687 | Run 240 X/L UPPER S 0-0130 0-0440 0-1640 0-1640 0-3300 0-5770 0-7380 0-9900 1-9090 | FLAI CP URFACE 0.6660 -0.217 -0.1751 -0.6154 -1.281 -1.984 -1.281 -1.984 -0.0264 0.1039 0.1741 URFACE 0.6000 0.6347 0.6019 0.5250 0.4772 0.6019 0.5250 0.4772 0.477 | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.7164 0.6854 0.4620 0.2489 0.4745 0.5160 0.5930 0.6854 P ML 0.4369 0.8469 0.9798 0.8469 0.9798 1.2615 1.0130 0.9469 0.7620 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 19 22 22 22 22 22 22 24 5 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 | X/L 0.0032 0.0032 0.0035 0.0250 0.0255 0.0255 0.0797 0.0990 0.1700 0.1700 0.2555 0.269 | 1.1081 0.2799 0.1343 -0.2641 -0.4569 -0.6591 -1.1368 -1.1533 -1.1642 -1.1826 -1.2018 -1.2018 -1.2196 -1.2196 -1.2196 -1.2196 -1.2196 -1.2503 -1.3730 -1.3732 - | ML 0.1238 0.64075 0.8175 0.87721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2276 1.3127 1.3124 1.3225 1.3225 1.3226 |
| NR UPPER 1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 5 16 17 18 19 20 21 22 23 24 25 26 27 28 EP 1 2 3 4 5 6 6 7 8 9 10 11 12 | X/L SURFACE 0.0 0.032 0.0037 0.0155 0.0345 0.0345 0.0797 0.01990 0.1400 0.1700 0.2595 0.2995 | CP 1.1600 0.7392 0.1628 -0.2570 -0.588 -0.2570 -0.7627 -0.7756 -0.7862 -0.77647 -0.7395 -0.77647 -0.8195 -0.78693 -0.8194 -0.8195 -0.8194 -0.8194 -0.8194 -0.8194 -0.8194 -0.8194 -0.8194 -0.8195 -0.8194 -0.9194 -0.9 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.98691 1.0557 1.1052 1.1071 1.1052 1.1263 1.1172 1.1263 1.1263 1.1263 1.1263 1.1263 1.1263 1.1263 0.9042 0.9042 0.9042 0.9042 0.9042 0.9042 0.90460 0.8068 | Run 240 X/L UPPER S 0.0130 0.0440 0.1640 0.2480 0.3700 0.4100 0.5770 0.7380 0.9000 1.0000 LOWFR S 0.0160 0.2530 0.4010 0.8050 1.0000 Run 241 X/L UPPER S 0.0 0.0160 0.2530 0.4010 0.8050 1.0000 Run 241 X/L UPPER S 0.0 0.1640 0.2540 0.1640 0.2640 0.2700 0.4100 0.25770 0.7180 0.27180 | FLAI CP URFACE 0.6600 -0.217 -0.1751 -0.6154 -1.281 -1.281 -1.281 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6009 0.6520 0.4772 0.6019 0.550R 0.5250 0.4772 0.1741 FLAI CP CP CP CP CP CP CP CP CP C | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.6854 0.4620 0.2489 0.4745 0.5160 0.5940 0.6854 P ML 0.4369 0.8469 0.9798 0.8469 0.9798 0.8469 0.7650 0.9469 0.9469 0.7650 0.6931 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 12 22 22 22 24 27 8 6 7 8 9 10 11 2 13 14 5 6 7 8 9 10 11 2 | X/L 0.0032 0.0032 0.00387 0.0155 0.0250 0.0250 0.0250 0.1400 0.1700 0.2595 0.2650 0.2595 0.2957 0.3800 0.4200 0.4500 0.5395 0.7000 0.4500 0.7505 0.7000 0.7525 0.7016 0.7000 0.7000 0.0070 0.0087 0.01897 0.0087 0.0000 0.2090 | 1.1061 0.2799 0.1343 -0.2641 0.4569 -0.6591 -0.8930 -1.0296 -1.1368 -1.1533 -1.1600 -1.1852 -1.1983 -1.2718 -1.2918 -1.27018 -1.2 | ML 0.1238 0.64075 0.87721 0.9549 1.0446 1.1547 1.2703 1.2703 1.2703 1.2703 1.3124 1.3134 1.3134 1.3148 1.3148 1.3281 1.3148 1.3281 1.3488 1.32881 1.328888 1.328888 1.32888 1.32888 1.32888 1.32888 1.328888 1.3 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 2 2 2 4 2 5 6 6 7 8 9 10 11 12 13 14 15 16 6 7 8 9 10 11 12 13 14 | X/L SURFACE 0.0 0.032 0.0037 0.0155 0.0450 0.0345 0.0797 0.01990 0.1400 0.1700 0.2595 0.2550 0.2595 0.2550 0.2595 0.2550 0.2550 | CP 1.1600 0.7392 0.1628 -0.2570 -0.588 -0.2570 -0.7627 -0.7756 -0.7862 -0.7647 -0.7395 -0.7764 -0.8195 -0.8195 -0.8194 -0.8194 -0.8195 -0.8195 -0.8195 -0.8195 -0.8196 | ML 0.0 0.4196 0.6047 0.6907 0.6907 0.7850 0.8691 0.9059 1.0557 1.052 1.1052 1.1072 1.1263 1.1172 1.1263 1.1263 1.1263 1.1263 1.1263 1.1263 0.9042 0.006199 0.9522 0.9042 0.006199 0.4460 0.8068 | Run 240 X/L UPPER S 0.01 30 0.01400 0.1640 0.1640 0.2480 0.5770 0.7380 0.9900 1.0000 LOWFR S 0.0600 0.2530 0.4010 0.8050 1.0000 Run 241 X/L UPPER S 0.0 2.1300 0.1040 0.1040 0.2530 0.4010 0.2530 0.4010 0.4010 0.2530 0.4010 0.4010 0.2530 0.4010 0.5770 0.7380 0.1400 0.1540 | FLAI CP URFACE 0.6600 -0.2546 -0.217 -0.1751 -0.6154 -1.1281 -1.0943 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6030 0.4772 0.3822 0.1741 FLA FLA SUPFACE 0.7076 -0.2147 -0.2157 -0.625 -0.1943 -0.1943 -0.1950 -0.19625 | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.2557 0.8768 0.7713 0.6854 0.4620 0.2489 0.4745 0.55160 0.55940 0.6854 0.4369 0.8469 1.2615 0.9469 1.2615 0.9469 0.97650 0.9469 0.97650 0.9469 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 17 18 19 20 22 22 22 24 5 6 7 8 9 10 11 12 13 14 15 6 17 18 19 10 11 12 13 14 15 6 17 8 9 10 11 12 13 14 | X/L 0.0032 0.0032 0.0035 0.0250 0.0250 0.0250 0.1400 0.1700 0.2595 0.2650 0.2595 0.2957 0.3967 0.3967 0.3960 0.5906 0.5906 0.5906 0.5906 0.5906 0.5906 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.6000 0.7506 0.7606 | 1.1081 0.27343 -0.2641 -0.4569 -0.6591 -0.4569 -1.1144 -1.1533 -1.1642 -1.1533 -1.1642 -1.1926 -1.2018 -1.1926 -1.2198 -1.2741 -1.2741 -1.2741 -1.2741 -1.2741 -1.303 -1.2741 -1.303 -1.2741 -1.303 -1.2741 -1.303 -1.2741 -1.304 | ML 0.1238 0.64075 0.8175 0.8771 0.9549 1.0446 1.1547 1.2243 1.2703 1.228 1.2703 1.228 1.3134 1.3134 1.3134 1.3148 1.3148 1.3148 1.3464 1.3 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 3 14 15 6 7 7 8 9 10 11 2 13 3 4 5 6 7 7 8 9 10 11 12 2 13 3 4 6 7 7 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L SURFACE 0.00 - 0.00 | CP 1.1600 9.7392 0.3592 0.1628 -0.05588 -0.05588 -0.05588 -0.05590 -0.7625 -0.7625 -0.7625 -0.7625 -0.7625 -0.7862 -0.7862 -0.7862 -0.7862 -0.7862 -0.7862 -0.7862 -0.7862 -0.7862 -0.7862 -0.8155 -0.8155 -0.8155 -0.8155 -0.8155 -0.8156 -0.8156 -0.8156 -0.8156 -0.8156 -0.8156 -0.8156 -0.8156 -0.8166 -0. | ML 0.0 0.4196 0.6047 0.6907 0.6907 0.7850 0.8691 0.9849 1.0057 1.1052 1.1072 1.1072 1.1172 1.1172 1.1173 1.1563 1.1609 1.1543 1.1563 1.1569 0.9042 0.2583 0.9042 0.46199 0.45199 0.45199 0.46469 0.8787 0.86884 0.8787 0.86884 | Run 240 X/L UPPER S 0.01 30 0.01400 0.1640 0.2480 0.3300 0.5770 0.7380 0.9900 1.9000 | FLAI CP URFACE 0.6600 -0.217 -0.1751 -0.6154 -1.1281 -1.9843 -0.2149 -0.0264 0.1038 0.1741 URFACE 0.6030 0.6347 0.1090 0.5250 0.4772 0.3822 0.1741 FLA FLA FLA FLA FLA FLA FLA FL | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2759 0.713 0.7164 0.6854 0.4620 0.2489 0.4745 0.5160 0.5283 0.57940 0.6854 P ML 0.4369 0.59798 0.59798 0.9469 0.8469 0.8469 0.8469 0.8469 0.8469 0.8469 0.8469 0.8469 0.8469 0.8469 0.87650 0.7720 0.9469 0.8469 0.8469 0.8469 0.87650 0.7720 0.9469 0.8469 | NR UPPER 1 2 3 4 5 6 7 8 9 10 112 13 114 115 117 118 129 221 222 224 5 27 28 COWER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14 | X/L 0.0032 0.0032 0.0035 0.0250 0.0250 0.0245 0.0757 0.0950 0.2455 0.0757 0.0960 0.1700 0.2505 0.2950 0.1000 0.7525 0.200 0.7525 0.200 0.7525 0.200 0.7525 0.200 0.7525 0.200 0.7525 0.200 0.7525 0.200 0.7525 0.200 0.0070 0.00850 0.00850 | 1.10E1 0.27943 -0.2641 -0.4569 -0.6591 -1.0296 -1.11468 -1.1530 -1.1662 -1.1852 -1.1928 -1.1928 -1.2708 -1.2708 -1.2703 -1.270 | ML 0.1238 0.64075 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2273 1.2283 1.2281 1.3182 1 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 112 13 14 15 6 17 22 23 24 5 6 7 8 9 10 11 12 22 3 24 5 6 7 8 9 10 11 11 2 13 14 5 6 6 7 8 9 10 11 11 2 13 14 5 6 6 7 8 9 10 11 11 2 13 14 5 6 6 7 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L SUBFAC: 0.00270 0.0037 0.0155 0.0250 0.0345 0.0797 0.1400 0.1700 0.1700 0.2995 0.3397 0.05996 0.2995 0.3397 0.0990 0.4200 0.4200 0.4200 0.4500 0.4500 0.7525 0.4515 0.82795 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.7525 0.45200 0.0487 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 0.0987 | CP 1.1600 9.7392 0.3592 0.1628 -0.0558 -0.0558 -0.0558 -0.05590 -0.7625 -0.7756 -0.7862 -0.7756 -0.7862 -0.7756 -0.7862 -0.8199 -0.8196 -0.8294 -0.8195 -0.8931 -0.9055 -1.0879 -0.6916 -0.4484 1.1600 0.6898 -0.10975 -1.0879 -0.6916 -0.4484 1.1600 0.6898 -0.1762 -0.2052 | ML 0.0 0.4196 0.6047 0.6907 0.7850 0.8691 0.9849 1.0571 1.0948 1.1097 1.1092 1.1172 1.1172 1.1217 1.1361 1.1543 1.1609 1.1942 1.2583 1.1609 0.9542 0.0 0.46199 0.7612 0.8788 0.8364 0.8489 0.8587 0.866488 | Run 240 X/L 1 | FLAI CP URFACE 0.6600 -0.217 -0.1751 -0.6154 -1.1281 -1.9843 -0.2749 -0.0264 0.1039 0.1741 URFACE 0.6039 0.1741 URFACE 0.6039 0.1741 FLA FLA CP CP 0.4772 0.3822 0.1741 FLA SURFACE 0.7076 -0.2324 -1.0957 -0.1579 | ML 0.4620 0.9951 0.8544 1.0269 1.0269 1.02799 1.2557 0.8768 0.7116 0.6854 0.4620 0.2489 0.4745 0.5160 0.5283 0.5940 0.6854 P ML 0.4369 0.8469 0.8469 0.8469 0.8469 0.8469 0.7650 0.77520 0.76931 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 6 17 18 19 22 1 22 22 24 5 6 7 8 9 10 11 2 13 4 15 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 4 15 6 7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10 | X/L 0.0 032 0.0032 0.0037 0.0155 0.0250 0.245 0.0797 0.0990 0.1400 0.1700 0.2595 0.2995 0.3997 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 0.6000 0.7915 | 1.1061 0.27943 -0.2641 -0.4569 -0.6591 -0.8930 -1.0296 -1.1146 -1.1533 -1.1600 -1.1652 -1.1983 -1.1692 -1.1983 -1.2708 -1.2708 -1.2701 -1.2703 -1.2701 -1.2703 -1.2701 -1.2703 | ML 0.1238 0.64075 0.8175 0.8175 0.8721 0.9549 1.0446 1.1547 1.2243 1.2233 1.2228 1.3228 1.3124 1.3124 1.3128 1 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 2 2 2 2 4 2 5 5 6 7 8 9 10 11 12 2 13 3 4 5 6 7 8 9 10 11 12 2 13 14 15 6 16 16 16 16 16 16 16 16 16 16 16 16 1 | X/L SURFACE 0.0 0.032 0.0037 0.0155 0.0250 0.0345 0.0797 0.01990 0.1400 0.1700 0.2200 0.3397 0.3397 0.3397 0.3397 0.3800 0.4200 0.4200 0.5000 0.5295 0.2995 0.4000 0.5505 0.5000 0.5000 0.5000 0.5000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 0.6000 0.7525 | CP 1.1600 0.7392 0.1628 -0.0568 -0.0558 -0.05790 -0.7627 -0.7756 -0.7862 -0.7647 -0.7395 -0.7764 -0.8196 | ML 0.0 0.4196 0.6047 0.6907 0.6907 0.7850 0.8691 0.90597 1.1052 1.1072 1.1052 1.1072 1.1263 1.11361 1.1543 1.1563 1.1563 1.1563 1.1563 0.9042 0.006199 0.9522 0.9042 0.006199 0.4460 0.8687 0.8687 0.8687 0.86889 0.96887 0.86889 0.96889 | Run 240 X/L UPPER S 0.01 30 0.01400 0.1640 0.2480 0.3300 0.5770 0.7380 0.9900 1.9000 | FLAI CP URFACE 0.6600 -0.217 -0.1751 -0.6154 -1.1281 -1.9843 -0.2149 -0.0264 0.1038 0.1741 URFACE 0.6030 0.6347 0.1090 0.5250 0.4772 0.3822 0.1741 FLA FLA FLA FLA FLA FLA FLA FL | ML 0.4620 0.9951 0.8544 1.0269 1.0267 1.2799 1.275769 0.7713 0.6854 0.4620 0.2489 0.4745 0.5160 0.5289 0.5940 0.6854 0.4369 0.5940 0.6854 0.4369 0.6854 0.4369 0.6854 0.4369 0.6854 0.4369 0.6854 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 11 4 15 6 17 18 9 20 22 2 2 2 2 2 2 2 2 5 6 7 8 9 10 11 12 13 14 15 6 7 8 9 10 11 12 13 14 15 6 17 8 9 10 11 12 13 14 15 6 17 8 9 10 11 12 13 14 15 6 17 8 9 10 11 12 13 14 15 6 15 6 15 6 15 6 15 6 15 6 15 6 1 | X/L 0.0032 0.0032 0.0035 0.0250 0.0250 0.0245 0.0645 0.0645 0.2650 0.6620 0.7620 0.7625 0.2755 0.2755 0.2755 0.2755 0.2755 0.2750 0.6620 0.7625 0.0032 0.0077 0.1500 0.0087 0.1500 0.0087 0.1500 0.26550 0.26550 0.26550 0.26550 0.26550 0.26550 0.26550 0.26550 0.26550 0.26550 0.26550 | 1.10E1 0.2799 0.1343 -0.2641 -0.4569 -0.6591 -1.1368 -1.1533 -1.1642 -1.1826 -1.2018 -1.1926 -1.2198 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -1.1926 -1.2741 -0.8761 0.0220 -0.0220 -0.0525 0.2410 0.27823 0.27824 0.27824 0.27824 0.27824 0.27824 0.27827 | ML 0.1238 0.64075 0.8175 0.87721 0.9549 1.0446 1.1547 1.2243 1.2703 1.2028 1.2703 1.2028 1.3134 1.3131 1.3143 1.3148 1.3148 1.3148 1.3148 1.3464 1.3465 1.3791 1.4510 1.4510 1.4510 1.4510 1.4510 1.5517 1.6517 1.7518 |

¹⁾ See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.8 Continued

b. Continued¹⁾

| | | | 21 | | | | | | |
|---|--|---|--|--|---|--|--|--|--|
| Run | X/L | SECTION | ML ML | Run 242 FLA | P ML | Run 2 | X/L | SECTION | HS ML |
| UPPER 1 | SURFACE 0.0 | 1.0002 | 0.2493 | UPPER SURFACE 0.0 0.7212 | | UPPER 1 | SUPFACE 0.0 | 0.8691 | 0.3441 |
| 2 | 0.0032 | -0.0263 | 0.7711 | 0.0130 -0.5011 | | 2 | 0.0032 | -0.3143 | 0.8956 |
| 3 4 | 0.0387 | -0.4555 | 0.9538 | 0.0440 -0.1856 | 0.8377 | 3 | 0.0087 | -0.7853 | 1.1067 |
| 5 | 0.0250 | -0.5749 | 1.0524 | 0.1040 -0.1605 | | 5 | 0.0250 | -0.8859 | 1.1559 |
| 6 | 0.0345 | -0.8652 | 1.1431 | 0.2480 -0.6847 | 1.0546 | 6 | 0.0645 | -1.0268 -1.2392 | 1.2288 |
| 8 | 0.0797 | -1.0870 | 1.2561 | 0.3300 -0.8297 | 1.1225 | 7 8 | 0.0797 | -1.3615 | 1.4199 |
| 10 | 0.0990 | -1.2849 | 1.3681 | 0.5770 -0.2819 | 0.8779 | 9 | 0.0990 | -1.4236 | 1.4605 |
| 11 | 0.1400 | -1.3072 -1.3247 | 1.3816 | 0.7380 -0.1311 | 0.8143 | 10 | 0.1400 | -1.4488 | 1.4892 |
| 12 | 0.2200 | -1.3337 | 1.3966 | 1.0000 0.0772 | 0.7256 | 12 | 0.2200 | -1.4657 | 1.4906 |
| 13 | 0.2595 | -1.3373 | 1.4007 | LOWER SUPFACE | | 13 | 0.2595 | -1.4659 | 1.4918 |
| 15 | 0.3397 | -1.3581 | 1.4133 | 0.0 0.7212 | | 15 | 0.3397 | -1.4871 | 1.5045 |
| 16 | 0.3800 | -1.3617 | 1.4174 | 0.0160 0.9877 | | 16 | 0.3800 | -1.4912 -1.4786 | 1.5053 |
| 18 | 0.4600 | -1.3525 | 1.4111 | 0.1060 0.604 | | 18 | 0.4600 | -1.4524 | 1.4825 |
| 19 | 0.5000 | -1.3733 | 1.4234 | 0.4010 0.5164 | 0.5145 | 20 | 0.5000 | -1.3707 -1.2427 | 1.4277 |
| 21 | 0.5795 | -1.4109 | 1.4477 | 1 0.6010 0.4533 | | 21 | 0.5795 | -1.0862 | 1.2599 |
| 22 | 0.6200 | -1.3648 | 1.4161 | 0.8050 0.3350 | | 22 | 0.5200 | -0.7904 | 1.1718 |
| 24 | 0.7300 | -0.8522 | 1.1353 | 1.0000 0.0772 | 0.7256 | 24 | 0.7000 | -0.6800 | 1.0582 |
| 25 26 | 0.7525 | -0.7563 | 1.0898 | Run 243 FLA | p | 25 | 0.7525 | -0.6261 | 1.0339 |
| 27 | 0.8275 | -0.5316 | 1.0372 | WAL CD | ML | 26 27 | 0.8275 | -0.5916 -0.5426 | 0.9970 |
| 28 | 0.8500 | -0.4772 | 0.9630 | 0.0 0.7343 | 0.4223 | 28 | 0.8500 | -0.5187 | 0.9842 |
| LOWER | SURFACE 0.0 | 1.0002 | 0.2493 | 0.0130 -0.5057 | | LOWER | SUPFACE 0.0 | 0.8691 | 0.3441 |
| 2 | 0.0032 | 1.1284 | 0.0968 | 0.0440 -0.1889 | 0.8412 | 2 | 0.0032 | 1.1559 | 0.0 |
| 3 | 0.0070 | 0.9836 | 0.2616 | 0.1640 -0.7798 | 1.1035 | 3 | 0.0070 | 1.0823 | 0.1689 |
| 5 | 0.0497 | 0.4525 | 0.5617 | 0.2480 -0.7161 | 1.0727 | 5 | 0.0487 | 0.5871 | 0.4996 |
| 7 | 0.1500 | 0.2922 | 0.6336 | 0.4100 -0.7000 | 1.0661 | 6 7 | 0.0987 | 0.4023 | 0.5840 |
| 8 | 0.2000 | 0.1397 | 0.6996 | 0.5770 -0.4114 | 0.9363 | 8 | 0.2000 | 0.2302 | 0.6624 |
| 10 | 0.2492 | 0.0748 | 0.7277 | 0.9000 -0.2394 | 0.8624 | 10 | 0.2492 | 0.1528 | 0.6957 |
| 11 | 0.4492 | 0.0173 | 0.7526 | 1.0000 -0.1413 | 0.8202 | 11 | 0.4492 | 0.0453 | 0.7410 |
| 12 | 0.5500 | 0.0757 | 0.7273 | LOWER SURFACE | 0 (222 | 12 | 0.5500 | 0.1087 | 0.7144 |
| 14 | 0.7000 | 0.2538 | 0.6538 | 0.0160 0.9806 | 0.4223 | 14 | 0.7000 | 0.2790 | 0.6409 |
| 15 | 0.7500 | 0.2904 | 0.6346 | 0.0440 0.6156 | 0.4845 | 15 | 0.7500 | 0.2881 | 0.6358 |
| 16 | 0.7525 | 0.2586 | 0.6482 | 0.2530 0.5378 | 0.4048 | 16 | 0.7525 | 0.2735 | 0.6433 |
| 18 | 0.7900 | 0.2521 | 0.6510 | 0.4010 0.4977 | 0.5418 | 18 | 0.7900 | 0.2546 | 0.6526 |
| 19 | 0.8025 | 0.3177 | 0.6224 | 0.6010 0.4229 | 0.5769 | 19 | 0.8025 | 0.3128 | 0.6261 |
| - | | | 0 0 0 | | | | 2.40 | 100000000000000000000000000000000000000 | |
| | | | | 1.0000 -0.1413 | 0.8202 | | | | |
| Run | 223 | SECTION | uc | | | l Dun 2 | 20 | SECTION | uc |
| Run NR | X/L | SECTION | HS ML | Run 223 FLAT | | Run 2 | X/L | SECTION CP | HS ML |
| NR UPPER | X/L SUP CACE | CP | ME | Run 223 FLAN | ML | NP UPPER | X/L SURFACE | CP | ML |
| NR UPPER 1 2 | X/L SUPFACE 0.0 0.0032 | 0.9516 -0.4629 | ML 0.2654 0.7440 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 | ML 0.3661 0.7566 | NP UPPER 1 2 | X/L SURFACE 0.0 0.0032 | 0.9361 -0.7428 | ML 0.2381 0.7340 |
| NR UPPER 1 2 3 | X/L SUPFACE 0.0 0.0032 0.0087 | 0.9515 -0.4629 -0.9383 | ML 0.2654 0.7440 0.8887 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 | ML 0.3661 0.7566 0.6786 | NP UPPER 1 2 3 | X/L SURFACE 0.0 0.0032 0.0087 | 0.9361 -0.2428 -0.7122 | ML 0.2381 0.7340 0.8951 |
| NR UPPER 1 2 3 4 5 | X/L SUPFACE 0.0 0.0032 0.0037 0.0155 0.0250 | 0.9516 -0.4629 -0.9383 -1.0123 -1.1832 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 | Run 223 FLAI X/L CP UPPER SURFACE 0.00 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 | ML 0.3661 0.7566 0.6786 0.6880 0.8164 | NP UPPER 1 2 3 4 5 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 |
| NR UPPER 1 2 3 4 5 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 | 0.9516 -0.4629 -0.9383 -1.0123 -1.1832 -1.3855 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 | Run 223 FLAI VALUE CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.7021 | ML 0.3661 0.7566 0.6786 0.6880 0.8164 0.8533 | NP UPPER 1 2 3 4 5 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 | 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 |
| NR UPPER 1 2 3 4 5 6 7 8 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 | 0.9516 -0.4629 -0.9383 -1.0133 -1.1832 -1.3855 -1.5322 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 | Run223 FLAI X/L CP UPPER SURFACE 0.01 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 | ML 0.3661 0.7566 0.6786 0.6880 0.8164 0.8533 0.9182 0.8669 | NP UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0645 0.0797 | 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5686 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2157 |
| NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0545 0.0797 0.0990 | 0.9516 -0.4629 -0.9383 -1.0123 -1.1832 -1.3855 -1.5287 -1.5287 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 | Run 223 FLAI X/L CP UPPER SURFACE 0.0130 0.4658 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 | ML 0.3661 0.7566 0.6776 0.6880 0.8164 0.8533 0.9182 0.8669 0.7036 | NP UPPER 1 2 3 4 5 6 7 8 9 | X/L SURFACE 0.0 0.0032 0.0287 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5686 -1.6411 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2157 1.2470 |
| NR UPPER 1 2 3 4 5 6 7 8 9 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 0.1400 0.1700 | CP 0.9515 -0.4629 -0.9383 -1.0133 -1.1832 -1.5287 -1.6314 -1.1495 -0.9413 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0423 0.9533 0.8890 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.8305 0.7380 -0.1043 0.9000 0.0590 | ML 0.3661 0.7566 0.6786 0.6880 0.8164 0.8533 0.9182 0.8669 0.7036 0.6235 0.5808 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 C.1400 0.1700 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.6411 -1.5494 -1.4827 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2157 1.2470 1.2081 1.1806 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0545 0.0797 0.0990 0.1400 0.1200 | 0.8516 -0.4629 -0.9383 -1.0133 -1.1832 -1.5322 -1.5287 -1.4314 -1.1495 -0.9413 -0.9242 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.9533 0.8890 0.8835 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1033 | ML 0.3661 0.7566 0.6786 0.6880 0.8164 0.8533 0.9182 0.8669 0.7036 0.6335 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 C.1400 0.1700 0.2200 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.6411 -1.5494 -1.4827 -1.1357 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2157 1.2470 1.2081 1.1806 1.0460 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0545 0.0797 0.0990 0.1400 0.1700 0.2290 0.2595 | 0.9516 -0.4629 -0.9383 -1.0123 -1.832 -1.3855 -1.522 -1.5287 -1.4214 -1.1495 -0.9242 -0.9260 -0.9369 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8890 0.8835 0.8790 0.9576 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2211 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1744 LOWEF SURFACE | ML 0.3661 0.7566 0.6786 0.6880 0.8164 0.8533 0.9182 0.8669 0.7036 0.6335 0.5808 0.5424 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 0.1700 0.2200 0.2595 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5686 -1.6411 -1.5494 -1.4827 -1.1357 -0.8536 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2157 1.2470 1.2081 1.1806 1.0460 0.9475 0.9443 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 0.1400 0.1700 0.2290 0.2595 0.2595 0.3257 | 0.8516 -0.4629 -0.9383 -1.0123 -1.1832 -1.5287 -1.5287 -1.5214 -1.1495 -0.9060 -0.9369 -0.9072 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.9533 0.8890 0.8835 0.8790 0.9576 0.8486 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1042 0.9000 0.0590 1.0000 0.0590 1.0000 0.05458 | ML 0.3661 0.7566 0.6786 0.6880 0.8164 0.8533 0.9182 0.8669 0.7036 0.5424 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0245 0.0645 0.0797 0.0990 C.1400 0.2595 0.2595 0.2595 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9826 -1.2036 -1.4342 -1.5686 -1.6411 -1.5494 -1.4827 -0.8627 -0.86313 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2157 1.2470 1.2081 1.1806 1.1806 0.9475 0.9443 0.9367 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | X/L SUPFACE 0.0 0.0032 0.0087 0.0155 0.0256 0.0797 0.1400 0.1400 0.2200 0.2595 0.2995 0.3397 0.3800 0.4200 | 0.9516 -0.4629 -0.9383 -1.0123 -1.1832 -1.5287 -1.4214 -1.1495 -0.9060 -0.9369 -0.P072 -0.7793 -0.7793 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.9523 0.8835 0.8835 0.8790 0.8486 0.3336 0.8486 0.3335 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1040 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.2305 0.7380 -0.1043 0.9000 0.0590 1.3000 0.1740 LOHER SURFACE 0.0 0.6458 0.0160 0.9479 0.0040 0.5067 | ML 0.3661 0.7566 0.6786 0.6786 0.8164 0.8182 0.81669 0.7036 0.6335 0.5808 0.5424 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 | X/L SURFACE 0.0 0.0032 0.0187 0.0185 0.0250 0.0245 0.0767 0.0990 C.1400 0.1700 0.2200 0.2595 0.3397 0.3890 0.4200 | CP 0.9361 -0.2428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5686 -1.6411 -1.5494 -1.1357 -0.8536 -0.8313 -0.8108 -0.7942 | ML 0.2381 0.7340 0.8951 0.9271 0.9899 1.0709 1.1607 1.2470 1.2081 1.1806 1.0460 0.9475 0.9463 0.9367 0.9290 0.9232 |
| NR UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 | X/L 50-C 0.0032 0.0035 0.0250 0.0345 0.0797 0.0990 0.1400 0.1700 0.2595 0.2995 0.3957 0.3957 0.3900 0.4200 | CP 0.9516 -0.4629 -0.9383 -1.0123 -1.1832 -1.3855 -1.5227 -1.5227 -1.6214 -0.9242 -0.9060 -0.9369 -0.9793 -0.7586 | ML 0.7654 0.7440 0.8887 1.0293 1.0777 1.0762 1.0443 0.9533 0.8890 0.8895 0.8396 0.8396 0.8396 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOWER SURFACE 0.0 0.6459 0.0160 0.9479 0.0160 0.9479 0.0160 0.5814 | ML 0.3661 0.7566 0.6786 0.6786 0.6853 0.9182 0.8533 0.9182 0.6335 0.5424 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | X/L SURFACE 0.0 0.0032 0.0155 0.0255 0.0245 0.0767 0.0790 0.1700 0.2200 0.2595 0.2990 0.2200 0.2595 0.3397 0.3890 0.4200 | CP 0.9361 -0.7428 -0.7122 -0.8054 -1.9036 -1.4342 -1.5486 -1.5494 -1.1357 -0.8627 -0.8536 -0.8313 -0.79024 | ML 0.2381 0.7340 0.8951 0.98751 0.9899 1.1607 1.2157 1.2470 1.2081 1.1806 1.0460 0.9475 0.9463 0.9367 0.9230 0.9230 0.9230 |
| NR UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 | X/L 5UP FACE 0.0 0.032 0.035 0.0250 0.0250 0.0250 0.0750 0.0750 0.0750 0.0250 0.1400 0.1700 0.2595 0.2595 0.3957 0.3800 0.4600 0.5398 | 0.9515 -0.4629 -0.383 -1.0123 -1.1832 -1.5287 -1.5287 -1.5287 -1.4314 -1.1495 -0.9413 -0.9242 -0.9060 -0.9075 -0.7793 -0.7793 -0.7758 -0.7758 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.9523 0.8835 0.8835 0.8790 0.8486 0.3336 0.8486 0.3335 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOHEF SUPFACE 0.0 0.6458 0.0160 0.9479 0.0460 0.5814 0.2530 0.5818 0.4010 0.58318 | ML 0.3661 0.7566 0.6786 0.6786 0.6853 0.9182 0.8533 0.9182 0.6335 0.5824 0.3661 0.2045 0.3933 0.4135 0.4248 | NP UPPER 1 2 3 4 5 6 7 8 9 10 111 123 114 115 116 117 118 119 20 | X/L 0.0 0.0032 0.00387 0.0155 0.0250 0.0250 0.0245 0.0445 0.0445 0.0747 0.0990 0.1700 0.2595 0.2955 0.2955 0.3997 0.38900 0.4600 0.5000 0.5000 | CP 0.9361 -0.7422 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.6411 -1.5494 -1.4827 -0.8536 -0.8313 -0.8113 -0.8108 -0.7942 -0.8280 -0.8382 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.1070 1.1207 1.2157 1.2477 1.2477 1.2477 1.2477 0.9443 0.9457 0.9457 0.9252 0.9253 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 5 16 17 18 19 20 21 | X/L SUPFACE 0.0 0.032 0.035 0.035 0.025 0.034 0.045 0.0745 0.0745 0.2595 0.2595 0.3397 0.3397 0.4200 0.4200 0.5000 0.5000 | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5922 -1.522 -1.522 -0.9413 -0.9242 -0.9060 -0.9369 -0.7793 -0.7781 -0.7785 -0.7781 | ML 0.2654 0.7440 0.8887 0.9112 0.9643 1.07762 1.0762 1.0762 0.9533 0.9530 0.8835 0.8790 0.8835 0.8790 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.1749 LOHEF SURFACE 0.0 0.6458 0.0160 0.9479 0.0160 0.9514 0.2530 0.5318 0.4010 0.5814 0.2530 0.5318 | ML 0.3661 0.7566 0.6786 0.6786 0.9182 0.8669 0.7036 0.535 0.5424 0.3661 0.2045 0.3933 0.4135 0.4248 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 | X/L 0.00 0.00327 0.0155 0.0250 0.0245 0.0250 0.0757 0.0990 C.1400 0.2200 0.2505 0.2695 0.2995 0.2995 0.3990 0.4600 0.4600 0.5000 0.5000 0.5000 0.5000 | CP 0.9361 0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5686 -1.4827 -1.4827 -0.8536 -0.8313 -0.8108 -0.9024 -0.9024 -0.9024 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.9271 1.1607 1.2157 1.2470 0.9475 0.9475 0.9475 0.9475 0.9290 0.9232 0.9253 |
| NR UPPER 1 2 3 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 | x/L 5UP FACE 0.0037 0.0155 0.0250 0.0345 0.0545 0.0790 0.1400 0.1200 0.2700 0.2795 0.3297 0.3297 0.3297 0.3297 0.4200 0.5000 0.5000 0.5796 0.5796 0.5796 0.5796 0.5796 | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5222 -1.5222 -1.522 -0.96413 -0.9242 -0.9060 -0.9368 -0.7793 -0.7781 -0.7781 -0.7785 -0.7781 -0.7781 | ML 0.2654 0.7440 0.8887 0.9112 0.9643 1.0777 1.0762 1.0443 0.9523 0.8890 0.9523 0.8396 0.8380 0.8380 0.8380 0.8380 0.8380 0.8380 0.8380 0.8380 0.8380 0.8380 0.8380 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOHEF SUPFACE 0.0 0.6458 0.0160 0.9479 0.0460 0.5814 0.2530 0.5818 0.4010 0.58318 | ML 0.3661 0.7566 0.6786 0.6786 0.6853 0.9182 0.8533 0.9182 0.6335 0.5824 0.3661 0.2045 0.3933 0.4135 0.4248 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 | X/L 0.0 0.032 0.037 0.0155 0.0250 0.0245 0.0767 0.0155 0.0767 0.0545 0.0767 0.3990 0.2995 0.3990 0.400 0.5995 0.3990 0.400 0.5995 | CP 0 - 9361 - 0 - 7428 - 0 - 7122 - 0 - 8054 - 0 - 9828 - 1 - 2036 - 1 - 4342 - 1 - 5586 - 1 - 6411 - 1 - 5494 - 1 - 4827 - 0 - 8627 - 0 - 8136 - 0 - 8136 - 0 - 8280 - 0 - 8280 - 0 - 8343 - 0 - 9315 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.9271 1.1607 1.2157 1.2081 1.18060 0.9475 0.9475 0.9290 0.9253 0.9383 0.9383 0.9383 |
| NR UPPER 1 2 3 4 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 | X/L 5UP ACE 0.00 0.03 0.015 0.0250 0.034F 0.0797 0.0797 0.0990 0.1400 0.1700 0.2595 0.2900 0.2595 0.3297 0.3397 0.3397 0.3397 0.3996 0.50000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.50 | 0.9515 -0.4629 -0.9363 -1.0123 -1.1832 -1.3955 -1.5227 -1.5217 -1.4314 -1.1495 -0.9412 -0.9060 -0.9368 -0.7793 -0.7793 -0.7793 -0.7793 -0.7791 -0.7791 -0.7791 -0.7791 -0.7791 -0.7791 -0.7791 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0743 0.8880 0.9533 0.8876 0.8355 0.8355 0.8356 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 0.8336 | Run 223 FLAI X/L CP UPPER SURFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.1749 LOHEF SURFACE 0.0 0.6458 0.0160 0.9479 0.0160 0.5814 0.2530 0.5318 0.4010 0.5030 0.6010 0.4539 0.8050 0.3528 1.0000 0.1749 | ML 0.3661 0.7566 0.6786 0.6786 0.8164 0.9182 0.8669 0.7036 0.5808 0.5424 0.3661 0.2045 0.3839 0.4135 0.4248 0.4437 0.4773 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 3 14 5 16 17 18 19 20 21 22 2 2 2 4 | X/L 0.0 0.0032 0.00387 0.0155 0.0250 0.0245 0.0767 0.0190 0.1700 0.1700 0.2905 0.3397 0.3900 0.4200 0.5005 0.3900 0.4200 0.5005 0.3900 0.4200 0.5005 0.3900 0.4200 0.5000 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.4827 -1.4827 -1.4827 -1.1357 -0.8627 -0.8313 -0.8108 -0.942 -0.824 -0.824 -0.824 -0.8344 -0.8344 -0.8344 -0.8344 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.2157 1.2157 1.2281 1.1806 0.9475 0.9453 0.9367 0.9290 0.9387 0.9290 0.9383 0.9383 0.9383 |
| NR UPPER 1 2 3 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 | x/L 5UP FACE 0.0037 0.0155 0.0250 0.0345 0.0545 0.0790 0.1400 0.1200 0.2700 0.2795 0.3297 0.3297 0.3297 0.3297 0.4200 0.5000 0.5000 0.5796 0.5796 0.5796 0.5796 0.5796 | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5222 -1.5222 -1.522 -0.96413 -0.9242 -0.9060 -0.9368 -0.7793 -0.7781 -0.7781 -0.7785 -0.7781 -0.7781 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0745 0.9573 0.8880 0.9576 0.8355 0.8335 0.8336 0.8380 0.8385 0.8385 0.8387 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.66458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.37300 -0.1043 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.05590 1.0000 0.1740 LOMES SUPFACE 0.0 0.6458 0.0160 0.9479 0.0450 0.0160 0.9814 0.2530 0.5318 0.4010 0.6068 1.0000 0.1749 Run 229 FLA X/L | ML 0.3661 0.7566 0.6786 0.6786 0.8533 0.9182 0.8639 0.7036 0.5808 0.5424 0.3661 0.2045 0.3730 0.4135 0.4248 0.4437 0.4773 0.5424 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 | X/L 0.0 0.032 0.037 0.0155 0.0250 0.0245 0.0767 0.0155 0.0767 0.0545 0.0767 0.3990 0.2995 0.3990 0.400 0.5995 0.3990 0.400 0.5995 | CP 0 - 9361 - 0 - 7428 - 0 - 7122 - 0 - 8054 - 0 - 9828 - 1 - 2036 - 1 - 4342 - 1 - 5586 - 1 - 6411 - 1 - 5494 - 1 - 4827 - 0 - 8627 - 0 - 8136 - 0 - 8136 - 0 - 8280 - 0 - 8280 - 0 - 8343 - 0 - 9315 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.9271 1.1607 1.2157 1.2081 1.18060 0.9475 0.9475 0.9290 0.9253 0.9383 0.9383 0.9383 |
| NR UPPER 1 2 3 4 5 6 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 22 25 26 27 | X/L 5UP FACE 0.00 0.03 0.0155 0.0250 0.0250 0.0797 0.0990 0.1400 0.2595 0.2595 0.3297 0.3800 0.4200 0.5296 0.5 | 0.9515 -0.4629 -0.3983 -1.0123 -1.1832 -1.3855 -1.5287 -1.4314 -1.1495 -0.413 -0.9242 -0.060 -0.7581 -0.7758 -0.7588 - | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0763 0.8573 0.8573 0.8375 0.8385 0.8336 0.8335 0.8336 0.8335 0.8375 0.8375 0.8375 0.8375 0.8375 0.8375 0.8375 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.66458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7300 -0.1043 0.5770 -0.305 0.7300 -0.1043 0.9000 0.0590 1.0000 0.0590 1.0000 0.0590 0.06458 0.0160 0.9470 0.0460 0.1060 0.9814 0.2530 0.5318 0.4010 0.5814 0.2530 0.5318 0.4010 0.5389 0.8050 0.3628 1.0000 0.1749 Run 229 FLA X/I UPPER SUPFACE 0.0 0.3628 1.0000 0.1749 | ML 0.3661 0.7566 0.6786 0.6786 0.8164 0.9182 0.8669 0.7036 0.5808 0.5424 0.3661 0.2045 0.3839 0.4135 0.4248 0.4437 0.4773 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 23 24 25 22 22 22 24 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | X/L 0.0 0.0032 0.00387 0.0155 0.0250 0.0245 0.0645 0.0767 0.0990 0.1700 0.2595 0.2939 0.2939 0.3997 0.3990 0.4200 0.4200 0.4595 0.5935 0.5935 0.7955 0.7955 0.7815 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4382 -1.5494 -1.4827 -1.5494 -1.4827 -0.8536 -0.8313 -0.9108 -0.7942 -0.8024 -0.8343 -0.8 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.2081 1.1806 1.2157 1.2470 1.2081 0.9475 0.9443 0.9357 0.9357 0.9353 0.9381 0.9383 0.9381 0.9381 0.9381 0.9381 0.9381 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 19 20 21 22 23 24 5 26 27 28 | X/L 5UP ACE 0.03 0.0387 0.0155 0.0350 0.0346 0.0545 0.0545 0.0545 0.2200 0.2200 0.2595 0.2995 0.3997 0.3997 0.3990 0.4600 0.5060 0.7060 0. | 0.9515 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.522 -1.522 -1.522 -1.522 -0.9413 -0.9242 -0.9060 -0.9369 -0.7781 -0.7785 -0.7781 -0.7785 -0.7781 -0. | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0745 0.9573 0.8880 0.9576 0.8355 0.8335 0.8336 0.8380 0.8385 0.8385 0.8387 | Run 223 FLA X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOHEF SUPFACE 0.0 0.6458 0.0160 0.9479 0.0469 0.0590 0.05668 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8533 0.9182 0.8669 0.7036 0.5835 0.9182 0.3661 0.2045 0.3833 0.4135 0.4248 0.4477 0.4773 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 5 16 17 18 19 22 1 22 3 24 5 26 | X/L 0.0 0.0032 0.0037 0.0155 0.0250 0.0245 0.0767 0.0156 0.0767 0.01700 0.1700 0.2595 0.3397 0.4600 0.5335 0.5335 0.5335 0.6600 0.7000 0.7525 0.2605 0.37525 0.3850 0.4600 0.5335 0.5335 0.5335 0.6600 0.7000 0.7525 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.4586 -1.6411 -1.5494 -1.4827 -1.1357 -0.8526 -0.8313 -0.9102 -0.9260 -0.9260 -0.9260 -0.9343 -0.9343 -0.9354 -0.9354 -0.9354 -0.9356 -0.9360 -0.9 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.1607 1.2157 1.2475 1.0460 0.9443 0.9367 0.9292 0.9260 0.9253 0.9393 0.9393 0.9375 0.9393 0.9375 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 22 23 24 25 26 27 28 COWER 1 | X/L 5UP FACE 0.00 0.0387 0.0155 0.0250 0.0345 0.0545 0.0545 0.0545 0.040 0.2700 0. | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5322 -1.522 -1.522 -1.522 -0.96413 -0.9242 -0.9060 -0.9369 -0.7793 -0.7781 -0.7781 -0.7781 -0.7781 -0.7781 -0.7781 -0.7781 -0.7781 -0.7791 -0.5593 -0.4628 -0.4628 | ML 0.2654 0.7460 0.8887 0.9112 0.9625 1.0293 1.0777 1.0762 1.0743 0.8890 0.9573 0.8890 0.8375 0.8335 0.8335 0.8335 0.8335 0.8335 0.8335 0.8335 0.8371 0.8360 0.9572 0.8371 0.8360 0.9572 0.8371 0.8371 0.8371 0.8372 0.8372 | Run 223 FLA X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 ELOHEF SUPFACE 0.0 0.6458 0.0160 0.9479 0.0469 0.0590 0.5930 0.6458 0.0160 0.5814 0.2530 0.5318 0.4010 0.5030 0.652 0.1060 0.5814 0.2530 0.3628 1.0000 0.1749 END CONTRACT O.0000 0.1749 END CONTRACT O.00000 0.1749 END CONTRACT O.000000 0.1749 END CONTRACT O.000000000000000000000000000000000000 | ML 0.3661 0.7566 0.6786 0.6786 0.6880 0.9182 0.8669 0.7036 0.6335 0.5828 0.5424 0.3661 0.2045 0.3930 0.4135 0.4248 0.4477 0.4773 0.5424 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 112 13 14 15 17 18 19 20 21 22 23 24 26 27 28 LOWEP 1 | X/L 0.0 0.032 0.037 0.0155 0.0250 0.0245 0.0767 0.0155 0.0767 0.0545 0.0767 0.0990 0.1200 0.2200 0.2455 0.3990 0.2405 0.3990 0.2005 0.3950 0.3950 0.4600 0.5105 0.5765 0.6600 0.7000 0.7525 0.7615 0.8250 0.8250 0.8250 0.8250 0.8250 0.8250 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.4827 -1.1357 -0.8526 -0.8313 -0.8526 -0.8326 -0.8343 -0.9028 -0.9028 -0.9028 -0.9028 -0.9028 -0.9028 -0.9028 -0.9028 -0.4468 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.9281 1.1607 1.2157 1.2081 1.1806 0.9445 0.9450 0.9453 0.9357 0.9290 0.92353 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 |
| NR UPPER 1 2 3 4 5 6 6 7 7 8 9 9 10 11 2 13 14 15 16 7 18 19 20 21 22 23 24 25 26 27 28 LOWER | X/L 5UP FACE 0.00 0.0387 0.0155 0.0250 0.0345 0.0545 0.0740 0.1400 0.1200 0.2795 0.3397 0.3990 0.4200 0.4200 0.5795 0.3397 0.5796 0 | 0.9515 -0.4629 -0.9363 -1.0123 -1.1832 -1.3555 -1.5227 -1.4314 -1.1495 -0.9060 -0.9369 -0.907 -0.7793 -0.7793 -0.7781 -0.7785 -0.7781 -0.7712 -0.7712 -0.7712 -0.593 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.593 -0.594 -0.59 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0745 0.8576 0.8355 0.8355 0.8336 0.8336 0.8380 0.8385 0.8381 0.8380 0.8385 0.8381 0.8381 0.8381 0.8380 0.9576 0.8385 0.8371 0.8385 0.8371 0.8386 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.95778 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.95778 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.9576 0.95778 0.9576 0.9 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOWER SURFACE 0.0 0.6458 0.01660 0.9479 0.0440 0.6062 0.1060 0.5814 0.2530 0.5318 0.4010 0.5062 0.1060 0.5814 0.2530 0.5318 0.4010 0.5062 0.1060 0.5814 0.2530 0.5458 0.8050 0.3628 1.0000 0.1740 Run 229 FLA X/I UPPER SURFACE 0.0 0.6648 0.0120 0.5644 0.0120 0.5064 | ML 0.3661 0.7566 0.6786 0.6786 0.6880 0.8164 0.8533 0.708660 0.7036 0.5808 0.5424 0.3661 0.2045 0.3830 0.4135 0.4243 0.4437 0.4773 0.4773 0.4773 0.4773 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 22 2 24 27 28 LOWEP LOWER | X/L SURFACE 0.0 0.0032 0.00387 0.0155 0.0250 0.0245 0.0767 0.0990 0.1700 0.1700 0.2595 0.3397 0.3890 0.4200 0.5395 0.4200 0.5305 0.4200 0.5305 0.7000 0.7525 0.8275 0.8275 0.8275 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.4342 -1.5494 -1.4827 -0.8627 -0.8536 -0.8313 -0.8138 -0.7942 -0.8280 -0.8343 -0.8343 -0.8343 -0.8343 -0.8343 -0.8343 -0.9315 -0.7378 -0.4068 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.1607 1.2157 1.2081 1.1806 0.9445 0.9450 0.9453 0.9387 0.9290 0.9222 0.9040 0.9253 0.9381 0.9376 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 9 10 11 2 13 4 15 16 17 18 9 20 21 22 23 24 25 6 27 8 LOWER 1 2 3 4 | X/L 5UP ACE 0.00 0.03 0.0037 0.0155 0.0250 0.0346 0.0797 0.0990 0.1400 0.1700 0.2700 0.2595 0.2595 0.3397 0.3397 0.3390 0.4200 0.4500 0.4500 0.4500 0.7505 0.7525 0.8752 0.8752 0.8875 0.8875 0.8875 0.8875 0.8875 | 0.8515 -0.4629 -0.3863 -1.0123 -1.1832 -1.3552 -1.5227 -1.4922 -0.9060 -0.726 -0.7793 -0.7781 -0.7785 -0.7781 -0.7712 -0.5938 -0.7781 -0.7712 -0.5938 -0.622 -0.5864 -0.5864 -0.5864 -0.4448 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9576 0.8375 0.8790 0.8375 0.8380 0.9383 0.8381 0.8380 0.9382 0.83880 0.9382 0.83880 0.93880 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOWER SURFACE 0.0 0.6459 0.01660 0.9479 0.0460 0.5814 0.2530 0.5318 0.4010 0.5067 0.1060 0.5814 0.2530 0.5318 0.4010 0.5030 0.6010 0.4539 0.8050 0.3628 1.0000 0.1740 Run 229 FLA X/L UPPER SUBFACE 0.0 0.6648 0.0140 -0.2500 0.1640 -0.2500 0.1640 -0.2267 0.1040 -0.2267 0.1040 -0.2267 | ML 0.3661 0.7566 0.6786 0.6786 0.6880 0.8164 0.8533 0.708660 0.7036 0.5808 0.5424 0.3661 0.2045 0.3830 0.4135 0.4243 0.4437 0.4773 0.47786 0.7786 0.7786 0.7786 0.7786 0.7786 0.7786 0.7786 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 23 24 26 27 28 28 28 29 20 20 21 21 22 23 24 24 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | X/L 0.0 0.0032 0.0032 0.0250 0.0250 0.0245 0.0767 0.0155 0.0245 0.0767 0.0990 0.2200 0.2595 0.3397 0.3890 0.4200 0.5000 0.5000 0.5705 0.6200 0.7000 0.7525 0.305 0 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.6411 -1.5494 -1.4827 -1.1357 -0.8627 -0.8313 -0.9108 -0.9384 -0.9384 -0.9384 -0.9384 -0.9386 -0.9386 -0.9386 -0.9386 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.1607 1.2157 1.2457 1.24081 1.1606 0.9443 0.9367 0.9292 0.9260 0.9453 0.9383 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 12 13 4 15 16 17 18 19 20 22 23 24 25 26 27 28 LOWER 1 2 3 4 5 6 | X/L 5UP FACE 0.00 0.0387 0.0155 0.0250 0.0345 0.0545 0.0740 0.1400 0.1200 0.2795 0.3397 0.3990 0.4200 0.4200 0.5795 0.3397 0.5796 0 | 0.9516 -0.4629 -0.9389 -1.0123 -1.1832 -1.5287 -1.5287 -1.4314 -1.1495 -0.9412 -0.9242 -0.9060 -0.9369 -0.7758 -0.7751 -0.7755 -0.7751 -0.7752 -0.7712 -0.5987 -0.5998 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9570 0.8835 0.8790 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8369 0.9375 0.8371 0.83685 0.7728 0.7429 0.7264 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.66458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.5770 -0.3305 0.7700 -0.3305 0.7700 -0.305 0.7900 0.0559 0.1000 0.0559 0.1060 0.9479 0.06458 0.0160 0.9479 0.0640 0.05060 0.1060 0.5814 0.2530 0.5318 0.4010 0.5318 0.4010 0.5318 0.4010 0.5318 0.4010 0.5318 0.4010 0.5318 0.8050 0.3528 1.0000 0.1749 Run 229 FLA X/I UPPER SUPFACE 0.0 0.6646 0.0120 0.1749 Run 29 FLA X/I UPPER SUPFACE 0.0 0.6646 0.0120 0.1749 Run 29 FLA X/I UPPER SUPFACE 0.0 0.6646 0.0120 0.1749 Run 29 FLA X/I UPPER SUPFACE 0.0120 0.1749 Run 29 FLA X/I UPPER SUPFACE 0.0120 -0.5064 0.0140 -0.2507 0.1640 -0.2507 0.1640 -0.2507 0.1640 -0.7881 0.3300 -1.1225 0.4100 -0.9390 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8593 0.9182 0.8669 0.7036 0.5808 0.5424 0.3661 0.2045 0.3890 0.4248 0.4437 0.4247 0.4773 0.5424 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 20 22 23 24 25 26 27 28 LOWEP 1 2 3 4 5 6 | X/L 0.0 0.0032 0.0032 0.0250 0.0245 0.0250 0.0245 0.0767 0.0150 0.2200 0.2595 0.3397 0.3890 0.4200 0.5005 0.3397 0.3890 0.4700 0.5005 0.3705 0.6600 0.7000 0.7525 0.8275 | CP 0.9361 -0.7422 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.6411 -1.4827 -1.1357 -0.8653 -0.8130 -0.9102 -0.9024 -0.9024 -0.9315 -0.9315 -0.9316 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.1607 1.2157 1.2081 1.1806 0.9445 0.9450 0.9453 0.9387 0.9290 0.9222 0.9040 0.9253 0.9381 0.9376 |
| NR UPPER 1 1 2 3 4 5 6 7 7 8 9 9 10 112 12 13 114 115 116 117 118 119 20 21 22 23 24 25 26 27 28 LOWER 1 2 3 4 5 6 7 7 | X/L 5UP ACE 0.00 0.03 0.034F 0.0155 0.0797 0.0196 0.2590 0.2595 0.2995 0.3297 0.3390 0.4200 0.4200 0.4200 0.5298 0.5790 0.4200 0.4200 0.5298 0.5790 0.4200 0.6600 0.7000 0.7525 0.7915 0.8570 0.8575 0.8570 0.8600 0.7000 0.0000 | 0.9515 -0.4629 -0.9363 -1.0123 -1.1832 -1.3555 -1.5227 -1.4314 -1.1495 -0.9413 -0.9242 -0.9060 -0.9369 -0.7793 -0.7793 -0.7781 -0.7775 -0.7711 -0.7712 -0.5938 -0.6177 -0.5938 -0.4148 -0.4440 -0.4504 | ML 0.2654 0.7440 0.8887 0.9112 0.9651 1.0293 1.07762 1.0443 0.9523 0.8880 0.9523 0.8880 0.8335 0.8790 0.8576 0.8385 0.8381 0.8380 0.9392 0.8371 0.8380 0.9392 0.8372 0.8372 0.8372 0.8374 0.8380 0.9392 0.8375 0.83871 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9451 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1042 0.9000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0591 0.0459 0.0140 0.5062 0.1060 0.5814 0.2530 0.5318 0.4010 0.5030 0.6018 0.4010 0.5030 0.6018 0.4010 0.5030 0.6018 0.0000 0.1746 Run 29 FLA X/L UPPER SUPFACE 0.0 0.6648 0.0120 -0.5064 0.0120 -0.2567 0.1040 -0.2567 | ML 0.3661 0.7566 0.6786 0.6786 0.6880 0.8164 0.8533 0.708660 0.7036 0.5808 0.5424 0.3661 0.2045 0.3830 0.4135 0.4243 0.4437 0.4773 0.47786 0.7786 0.7786 0.7786 0.7786 0.7786 0.7786 0.7786 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18 19 20 21 22 24 27 28 LOWER 1 2 3 4 5 6 7 | X/L 0.0 0.0032 0.00387 0.0155 0.0250 0.0245 0.00767 0.0950 0.22595 0.2050 0.3397 0.3890 0.4200 0.5305 0.4200 0.5305 0.505 0.7050 0.6000 0.7525 0.7050 0.8275 0.8275 0.8275 0.8275 0.8275 0.8275 0.8275 0.8275 0.8275 0.8275 | CP 0.9361 -0.7422 -0.8054 -0.9828 -1.2036 -1.4342 -1.4611 -1.5494 -1.4827 -1.1357 -0.8627 -0.8627 -0.8319 -0.9108 -0.7942 -0.9240 -0.9280 -0.9280 -0.3349 -0.4168 -0.4168 -0.4168 -0.4168 -0.4168 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.207 1.2157 1.2472 1.1806 0.9475 0.9443 0.9367 0.9292 0.9260 0.9383 0.9381 0.9381 0.9383 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 12 13 4 15 16 17 18 19 20 22 23 24 25 26 27 28 LOWER 1 2 3 4 5 6 | X/L 5UP ACE 0.00 0.0037 0.0155 0.0250 0.0345 0.0545 0.0797 0.1400 0.1700 0.2595 0.3297 0.3800 0.4200 0.5795 0.3970 0.4600 0.5795 0.6600 0.7525 0.7915 0.8275 0.8275 0.8275 0.9870 0.0032 0.0032 0.0032 0.0038 | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5922 -1.5222 -1.522 -1.522 -0.9060 -0.9369 -0.7793 -0.7781 -0.5593 -0.4622 -0.4188 -0.4516 - | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9573 0.8880 0.9573 0.8790 0.8880 0.9375 0.8380 0.9375 0.8381 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6648 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.9000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.0590 1.0000 0.1740 LOHEF SUPFACE 0.0 0.6458 0.0160 0.4679 0.0459 0.0160 0.5914 0.2530 0.5318 0.4010 0.6038 1.0000 0.1749 Run 229 FLA X/L UPPER SUPFACE 0.0 0.6648 0.04010 0.5030 0.6010 0.4538 0.8050 0.3528 1.0000 0.1749 Run 229 FLA X/L UPPER SUPFACE 0.0 0.6648 0.0130 -0.5064 0.0140 -0.2500 0.1640 -0.2500 0.1640 -0.2500 0.1640 -0.2500 0.1640 -0.7961 0.2460 -0.7981 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8533 0.9182 0.8662 0.3661 0.2045 0.3661 0.2045 0.3782 0.4248 0.4473 0.4773 0.5424 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 20 22 23 24 25 26 27 28 LOWEP 1 2 3 4 5 6 | X/L 0.0 0.0032 0.0032 0.0250 0.0245 0.0250 0.0245 0.0767 0.0150 0.2200 0.2595 0.3397 0.3890 0.4200 0.5005 0.3397 0.3890 0.4700 0.5005 0.3705 0.6600 0.7000 0.7525 0.8275 | CP 0.9361 -0.742 -0.8054 -0.9826 -1.2036 -1.4342 -1.5586 -1.0411 -1.4827 -1.4827 -0.8627 -0.8627 -0.8720 -0.9024 -0.90 | ML 0.2381 0.7340 0.8991 0.9271 0.9271 0.9289 1.0709 1.1607 1.2157 1.24081 1.1606 0.9443 0.9367 0.9290 0.9232 0.9263 0.9383 0.9375 0.9383 0.9375 0.93887 0.93887 0.93887 0.93887 0.93887 0.93887 0.93887 0.93887 0.93887 |
| NR UPPER 1 1 2 3 4 5 6 6 7 8 9 10 11 12 13 11 14 15 16 17 18 19 20 21 22 23 4 25 26 27 28 ER 1 2 3 4 5 6 7 8 9 10 | X/L 50.0 0.003 0.0037 0.0155 0.0250 0.0345 0.0545 0.0797 0.1400 0.1700 0.2795 0.3990 0.4600 0.4595 0.3990 0.4600 0.5796 0.5796 0.6600 0.7505 0.7915 0.8275 0.8275 0.8275 0.9870 0.0032 | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5122 -1.5222 -1.522 -1.522 -0.96413 -0.9242 -0.96413 -0.7735 -0.7786 -0.7781 -0.7786 -0.7781 -0.7786 -0.7781 -0.7781 -0.7712 -0.5982 -0.5982 -0.5982 -0.5982 -0.5982 -0.5982 -0.5982 -0.7931 -0.7711 -0.5712 -0.5982 | 0.2654 0.7640 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9573 0.8880 0.9573 0.8375 0.8335 0.8335 0.8335 0.8335 0.8335 0.8335 0.8335 0.8371 0.7905 0.7221 0.74291 | Run 223 FLA X/L CP UPPER SUPFACE 0.0 0.66458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7780 -0.1043 0.50770 -0.3305 0.7780 0.0559 0.1000 0.1740 1.0000 0.1740 1.0000 0.6458 0.0160 0.9479 0.04058 0.0160 0.9479 0.04058 0.0160 0.9479 0.04058 0.0160 0.9479 0.04058 0.0160 0.9479 0.04058 0.05814 0.2530 0.5318 0.4010 0.5030 0.6610 0.4538 0.8050 0.3528 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 0.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.1740 1.0000 0.0000 0.1740 1.0000 0.0000 0.1740 1.0000 0.0000 0.0000 0.0000 0.0000 0.000000 | ML 0.3661 0.7566 0.6786 0.6786 0.6880 0.8164 0.8532 0.7036 0.6335 0.5424 0.3661 0.2045 0.3830 0.4135 0.4248 0.4677 0.4773 0.7736 0.7785 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 112 134 156 17 18 19 20 21 22 24 26 27 28 ED U 1 2 4 5 6 7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10 | X/L 0.0 0.032 0.037 0.0155 0.0250 0.0245 0.0767 0.0155 0.0767 0.0990 0.1700 0.2290 0.2495 0.3990 0.2995 0.3397 0.4600 0.5395 0.3397 0.4600 0.5105 0.5775 0.6600 0.7000 0.7525 0.7815 0.8500 0.7000 0.7525 0.7815 0.8500 0.7000 0.7000 0.7525 0.7815 0.8500 0.7000 0.7000 0.7525 0.7815 0.8500 0.7000 | CP 0.9361 -0.7428 -0.7122 -0.8054 -0.9828 -1.2036 -1.4342 -1.5494 -1.4827 -1.4827 -0.8627 -0.8736 -0.8313 -0.8138 -0.7942 -0.8280 -0.8343 -0.9343 -0.8 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 0.9281 1.1607 1.2157 1.2081 1.1806 0.9445 0.9453 0.9250 0.9222 0.9260 0.92353 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 0.9393 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 16 17 18 19 20 21 22 23 24 25 6 27 8 LOWER 1 2 3 4 5 6 7 8 9 10 11 1 | X/L 5UP ACE 0.003 0.034 0.015 0.035 0.0346 0.0645 0.0645 0.0546 0.2200 0.2595 0.295 0.397 0.390 0.4600 0.7500 0.7505 0.8700 0.7525 0.87506 0.87506 0.87506 0.987 0.0032 0.00487 0.1000 0.0087 0.0087 0.1000 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 0.0087 | 0.8515 -0.4629 -0.3863 -1.0123 -1.1832 -1.3955 -1.5287 -1.4314 -1.1495 -0.9413 -0.9242 -0.9069 -0.7793 -0.7781 -0.7785 -0.7781 -0.7712 -0.5938 -0.622 -0.413 -0.414 -0.470 -0.5939 -0.414 -0.470 -0.5939 -0.414 -0.470 -0.5939 -0.4151 -0.7716 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9576 0.8385 0.8790 0.8375 0.8380 0.9392 0.8381 0.8380 0.9392 0.8387 0.8387 0.8387 0.728 0.7429 0.727 0.5498 0.7429 0.727 | Run 223 FLAX X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOHER SURFACE 0.0 0.6458 0.0160 0.9479 0.0460 0.9814 0.2530 0.5180 0.4010 0.5030 0.6010 0.4538 0.8050 0.3628 1.0000 0.1740 Run 229 FLA X/L UPPER SUBFACE 0.0 0.6648 0.01640 -0.2500 0.1640 -0.2500 0.1640 -0.2500 0.1640 -0.2500 0.1640 -0.2706 0.2480 -0.77881 0.3300 -1.1225 0.4100 -0.982 0.5770 -0.2320 0.7380 -0.0674 0.1040 -0.292 0.5770 -0.2320 0.7380 -0.0654 LOWER SUBFACE | ML 0.3661 0.7566 0.6786 0.6786 0.6880 0.8164 0.8532 0.7036 0.6335 0.4038 0.5424 0.3661 0.2045 0.3933 0.4135 0.42437 0.4736 0.42437 0.4736 0.42437 0.4736 0.42437 0.4736 0.4736 0.7266 0.7266 0.7266 0.7266 0.7267 0.7267 0.7267 0.7267 0.7267 0.7267 0.7276 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 9 20 21 22 23 24 25 6 7 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L 0.0 0.0032 0.0250 0.0245 0.0250 0.0245 0.0767 0.0155 0.0245 0.0767 0.0990 0.2200 0.2595 0.3397 0.3890 0.4600 0.5005 0.5795 0.6600 0.7000 0.7525 0.8275 0 | CP 0.9361 -0.7428 -0.7122 -0.8054 -1.2036 -1.2346 -1.4342 -1.5686 -1.6411 -1.5494 -1.4827 -1.1357 -0.8627 -0.8313 -0.9106 -0.8343 -0.9318 -0.6146 -0.4686 -0.4686 -0.4686 -0.4160 -0.4686 -0.4160 -0.4686 -0.4160 -0.4686 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.4160 -0.41618 -0.2083 -0.1017 -0.0154 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.1607 1.2157 1.2471 1.1046 0.9445 0.9445 0.9445 0.945 0.946 0.945 0.946 0.948 0.9387 0.9280 0.92 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 6 17 18 19 20 22 23 24 25 26 27 28 LOWER 1 2 3 4 5 6 6 7 8 9 10 11 2 13 | X/L 5UP ACE 0.00 0.0387 0.0155 0.0250 0.0345 0.0797 0.0156 0.0740 0.2700 0.2700 0.2595 0.3297 0.3897 0.3897 0.3990 0.4200 0.5296 0.4200 0.5296 0.6790 0.5796 0.6700 0.7910 0.8275 | 0.8516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3855 -1.5222 -1.5222 -1.5222 -1.5222 -1.5287 -0.413 -0.242 -0.9060 -0.7586 -0.7781 -0.7781 -0.7785 -0.7781 - | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0463 0.8880 0.9573 0.8880 0.9576 0.8486 0.3395 0.8790 0.8385 0.8381 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7380 -0.1043 0.9000 0.0590 1.0000 0.1740 LOWER SURFACE 0.0 0.6459 0.01660 0.9479 0.0440 0.6562 0.1060 0.5814 0.2530 0.5318 0.4010 0.5030 0.6010 0.4539 0.8050 0.3628 1.0000 0.1740 Run 229 FLA X/L UPPER SUBFACE 0.0 0.6648 0.0140 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.2267 0.1040 -0.0000 0.1040 -0.0000 0.1040 -0.0000 0.1040 -0.0000 0.1040 -0.0000 0.1040 -0.0000 0.1040 -0.0000 0.1040 -0.000000000000000000000000000000000 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8533 0.9182 0.8662 0.3661 0.2045 0.3661 0.2045 0.3782 0.4248 0.4473 0.4773 0.5424 | NPP UPPER 1 2 3 4 5 6 7 8 9 101 112 134 156 17 189 221 223 224 5 26 7 28 E | X/L 0.0 0.0032 0.0250 0.0245 0.0250 0.0245 0.0767 0.0155 0.2245 0.0767 0.1700 0.2200 0.2452 0.3397 0.4200 0.5395 0.3397 0.4200 0.5395 0.3295 0.4200 0.5000 0.7525 0.6600 0.7000 0.7525 0.6000 0.7000 0.7525 0.8250 0.001 0.0032 0.0047 0.15000 0.2492 0.0487 0.15000 0.2492 0.5500 | CP 0.9361 -0.7422 -0.8054 -0.9828 -1.2036 -1.4342 -1.5586 -1.6411 -1.4827 -1.1357 -0.8627 -0.8736 -0.8313 -0.8108 -0.9315 -0.9315 -0.9316 | ML 0.2381 0.7340 0.8991 0.9271 0.9271 0.1607 1.2157 1.2407 1.1606 0.9445 0.9367 0.9292 0.9263 0.9367 0.9293 0.9375 0.9393 0.9375 0.9381 0.9385 0.9381 0.9385 |
| NR UPPER 1 1 2 3 4 5 6 6 7 8 9 10 11 2 13 4 15 16 17 18 19 20 21 22 23 24 25 6 27 28 LOWER 1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 | X/L 5UP ACE 0.00 0.03 0.005 0.0357 0.0155 0.0797 0.0990 0.1400 0.1700 0.2595 0.2950 0.3297 0.3397 0.3397 0.3390 0.4200 0.4200 0.5396 0.5790 0.5790 0.5790 0.8275 | 0.8516 -0.4629 -0.3863 -1.0123 -1.1832 -1.3855 -1.5287 -1.4314 -1.1495 -0.9413 -0.9242 -0.960 -0.7936 -0.7781 -0.7785 -0.7781 -0.7712 -0.7781 -0.7712 -0.5938 -0.4622 -0.4148 -0.4593 -0.4622 -0.4148 -0.4593 -0.4622 -0.4148 -0.3736 | ML 0.2654 0.7440 0.8887 0.9112 0.9651 1.0293 1.0777 1.0762 1.0443 0.9523 0.8880 0.9523 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8376 0.8380 0.9392 0.8377 0.8380 0.9392 0.9151 0.7281 0.7291 0.2664 0.57789 0.57789 0.57789 0.57789 0.57789 0.57789 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6648 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.5770 -0.2305 0.7380 -0.1043 0.5770 -0.2305 0.7380 -0.1043 0.9000 0.05590 1.0000 0.05590 1.0000 0.05590 0.1060 0.9479 0.04040 0.0652 0.1060 0.5814 0.2530 0.3628 1.0000 0.1749 Run 229 FLA X/I UPPER SUPFACE 0.0 0.6648 0.0120 -0.7861 0.3040 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.2506 0.1640 -0.7861 0.3300 -1.1225 0.4100 -0.2506 0.1640 -0.7861 0.3400 -0.7861 0.3400 -0.7861 0.3400 -0.7861 0.3400 -0.7861 0.3400 -0.7861 0.3400 -0.7861 0.3400 -0.7861 0.3400 -0.7861 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8533 0.9182 0.8661 0.2045 0.3661 0.2045 0.3873 0.4135 0.4248 0.4637 0.4773 0.5424 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18 19 20 21 22 24 27 28 EP 1 20 11 21 21 21 21 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 22 | X/L 0.0 0.032 0.037 0.0155 0.0250 0.0245 0.0767 0.0155 0.0767 0.0545 0.0767 0.2200 0.245 0.3890 0.2400 0.4600 0.5505 0.397 0.6600 0.7000 0.7525 0.8500 0.7625 0.8500 0.7625 0.8500 0.7625 0.8500 0.7625 0.8500 0.7625 0.8500 | CP 0.9361 -0.7422 -0.8054 -0.9828 -1.2036 -1.4342 -1.4827 -1.4827 -1.4827 -1.4827 -0.8627 -0.8313 -0.9108 -0.924 -0.924 -0.924 -0.924 -0.925 -0.924 -0.9260 -0.8361 -0.1468 -0.4168 0.961 -0.961 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.1070 1.1607 1.2157 1.24701 1.10460 0.9445 0.9445 0.9445 0.945 0.9393 0.9381 0.9383 0.9381 0.938 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 7 8 9 10 11 12 13 14 15 16 7 8 9 10 11 12 13 14 15 16 | X/L 50.P ACE 0.003 0.003 0.0155 0.0250 0.0345 0.0797 0.0797 0.0990 0.1400 0.2700 0.2595 0.259 | 0.9516 -0.4629 -0.9363 -1.0123 -1.1832 -1.3952 -1.5287 -1.6314 -1.1495 -0.9413 -0.9242 -0.9060 -0.7781 -0.7781 -0.7785 -0.7781 -0.7712 -0.5938 -0.622 -0.4148 0.4516 1.3844 0.4470 0.6399 0.3776 0.6322 -0.4188 0.0617 -0.5938 -0.622 -0.4188 0.6329 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9526 0.8385 0.8790 0.8486 0.3396 0.8380 0.9392 0.8381 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.9382 | Run 223 FLA X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.4100 -0.8673 0.5770 -0.3305 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7770 -0.3305 0.7770 -0.3305 0.7770 -0.3505 0.1040 -0.8673 0.1040 -0.8673 0.1060 0.5518 0.00 0.6458 0.0160 0.5518 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.1060 0.5518 0.300 0.1648 0.0120 -0.5064 0.0140 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1050 0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.05640 0.6557 0.1060 0.55912 0.7550 0.55912 0.7550 0.55912 0.7550 0.55912 0.7550 0.55912 0.7550 0.55920 0.7550 0.55912 0.7550 0.55920 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8563 0.9182 0.8669 0.7036 0.5808 0.5424 0.3661 0.2045 0.3830 0.3830 0.4135 0.4137 0.5424 0.2890 0.4248 0.44373 0.5424 0.4677 0.5769 0.8768 0.7269 0.8768 0.7269 0.8768 0.7269 0.8768 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 2 11 3 11 4 15 6 17 8 19 20 21 22 22 3 4 5 6 7 8 9 10 11 2 11 3 11 4 15 6 7 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L 0.0 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.004 0.0032 0.004 0.0032 0.004 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 | CP 0.9361 -0.7428 -0.7122 -0.8054 -1.936 -1.2346 -1.4342 -1.4827 -1.4827 -1.4827 -1.4827 -0.8627 -0.8627 -0.8313 -0.8108 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.107 1.2157 1.24701 1.1046 1.0460 0.9475 0.9436 0.9387 0.9290 0.9387 0.9290 0.9387 0.9290 0.9387 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 0.9381 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 6 17 18 19 20 1 22 2 2 2 4 5 6 7 8 9 10 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | X/L 5UP-ACE 0.0032 0.0037 0.0155 0.0750 0.0345 0.0790 0.1400 0.1700 0.2200 0.2595 0.3297 0.3900 0.4200 0.5795 0.3900 0.7525 0.0032 0.6600 0.7525 0.0032 0.0182 0.0032 | 0.9516 -0.4629 -0.3883 -1.0123 -1.1832 -1.3955 -1.5222 | ML 0.2654 0.7440 0.8887 0.9112 0.9621 0.9635 1.0293 1.0777 1.0762 1.0443 0.8880 0.9523 0.8380 0.9320 0.8380 | Run 223 FLAI X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.2480 -0.8235 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.8673 0.9000 0.0590 1.0000 0.1740 LOHEF SUPFACE 0.0 0.6458 0.0160 0.9479 0.0458 0.0160 0.9479 0.0458 0.01060 0.5814 0.2530 0.5318 0.4010 0.5030 0.6010 0.4539 0.8050 0.3628 0.1060 0.9479 0.04640 0.4648 0.0401 0.5030 0.6010 0.4539 0.8050 0.3628 0.1060 0.9479 0.06468 0.0400 0.0503 0.1749 Run 229 FLA X/I UPPER SUPFACE 0.0 0.6648 0.0140 -0.2500 0.1640 -0.2500 0.1640 -0.7961 0.3300 -1.1225 0.4000 -0.9812 0.3770 -0.3067 0.3480 -0.9861 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 0.3490 -0.7961 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8533 0.9182 0.8669 0.7036 0.5824 0.3661 0.2045 0.3833 0.4135 0.4248 0.4637 0.4273 0.7286 0.7266 0.8838 0.9424 0.3890 0.9216 0.9216 0.9216 0.3890 0.4248 0.4773 0.7286 | NPP UPPER 1 2 3 4 5 6 7 8 9 10 11 13 14 15 17 18 19 20 21 22 24 26 27 28 ED 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | X/L 0-0 0-032 0-037 0-0155 0-0250 0-0245 0-0767 0-0155 0-0767 0-0159 0-2200 0-2595 0-3990 0-2690 0-2690 0-2690 0-27525 0-3875 0-2905 0-3875 0-2905 0-3875 0-2905 0-2905 0-3875 0-2905 0- | CP 0.9361 -0.7122 -0.8054 -1.2058 -1.2038 -1.4342 -1.5686 -1.6411 -1.4827 -1.4827 -1.4827 -0.8627 -0.8736 -0.8313 -0.87942 -0.87024 -0.8343 -0.8343 -0.8343 -0.8343 -0.8343 -0.8343 -0.8345 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.8361 -0.4168 | ML 0.2381 0.7340 0.8991 0.9271 0.9899 1.0709 1.1607 1.2157 1.2457 0.9445 0.9445 0.9445 0.945 0.925 0.9 |
| NR UPPER 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 7 8 9 10 11 12 2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 7 8 9 10 11 12 13 14 15 6 7 8 9 10 11 12 13 14 15 6 | X/L 50.P ACE 0.003 0.003 0.0155 0.0250 0.0345 0.0797 0.0797 0.0990 0.1400 0.2700 0.2595 0.259 | 0.9516 -0.4629 -0.9363 -1.0123 -1.1832 -1.3952 -1.5287 -1.6314 -1.1495 -0.9413 -0.9242 -0.9060 -0.7781 -0.7781 -0.7785 -0.7781 -0.7712 -0.5938 -0.622 -0.4148 0.4516 1.3844 0.4470 0.6399 0.3776 0.6322 -0.4188 0.0617 -0.5938 -0.622 -0.4188 0.6329 | ML 0.2654 0.7440 0.8887 0.9112 0.9645 1.0293 1.0777 1.0762 1.0443 0.8880 0.9526 0.8385 0.8790 0.8486 0.3396 0.8380 0.9392 0.8381 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.8380 0.9392 0.8371 0.9382 | Run 223 FLA X/L CP UPPER SUPFACE 0.0 0.6458 0.0130 -0.5057 0.0440 -0.2501 0.1040 -0.2811 0.1640 -0.7021 0.4100 -0.8673 0.5770 -0.3305 0.3300 -1.0331 0.4100 -0.8673 0.5770 -0.3305 0.7770 -0.3305 0.7770 -0.3305 0.7770 -0.3505 0.1040 -0.8673 0.1040 -0.8673 0.1060 0.5518 0.00 0.6458 0.0160 0.5518 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.4010 0.5018 0.1060 0.5518 0.300 0.1648 0.0120 -0.5064 0.0140 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1040 -0.2567 0.1050 0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.07861 -0.05648 0.05640 0.6557 0.1060 0.55912 0.7550 0.55912 0.7550 0.55912 0.7550 0.55912 0.7550 0.55912 0.7550 0.55920 0.7550 0.55912 0.7550 0.55920 | ML 0.3661 0.7566 0.6786 0.6786 0.6786 0.8563 0.9182 0.8669 0.7036 0.5808 0.5424 0.3661 0.2045 0.3830 0.3830 0.4135 0.4137 0.5424 0.2890 0.4248 0.44373 0.5424 0.4677 0.5769 0.8768 0.7269 0.8768 0.7269 0.8768 0.7269 0.8768 | NP UPPER 1 2 3 4 5 6 7 8 9 10 11 2 11 3 11 4 15 6 17 8 19 20 21 22 22 3 4 5 6 7 8 9 10 11 2 11 3 11 4 15 6 7 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L 0.0 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.004 0.0032 0.004 0.0032 0.004 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 | CP 0.9361 -0.7428 -0.7122 -0.8054 -1.936 -1.2346 -1.4342 -1.4827 -1.4827 -1.4827 -1.4827 -0.8627 -0.8627 -0.8313 -0.8108 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 -0.8318 -0.10852 | ML 0.2381 0.7340 0.8951 0.9271 0.9271 1.107 1.2157 1.24701 1.1046 1.0460 0.9475 0.9436 0.9387 0.9290 0.9387 0.9290 0.9381 |

¹⁾ See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

| Run 2 | 230 | SECTION | HS2) | Run 230 | FLAP | | Run 2 | 78 | SECTION | i HS |
|---|--|--|--|---|--|--|--|--|--|--|
| NR | X/L | CP | ML | X/L | CP | ML | NR | X/L | CP | ML |
| UPPER | SURFACE 0.0 | 0.5566 | 0.4375 | | RFACE | 0.3744 | UPPER | SUPFACE | | 2 (111 |
| 2 | 0.0032 | -0.9978 | 0.9959 | 0.0130 | 0.6957 -0.4188 | 0.7946 | 2 | 0.0032 | -0.9042 | 0.9622 |
| 3 | 0.0087 | -1.5639 | 1.2142 | 0.0440 | -0.1624 | 0.7065 | 3 | 0.0087 | -1.4656 | 1.1733 |
| 5 | 0.0155 | -1.6360 -1.6271 | 1.2443 | 0.1040 | -0.2027 | 0.7202 | 4 | 0.0155 | -1.5058 | 1.1893 |
| 6 | 0.0345 | -1.6980 | 1.2713 | | -0.6519 -0.8112 | 0.8743 | 6 | 0.0250 | -1.4961 -1.6063 | 1.1857 |
| 7 | 0.0645 | -1.8846 | 1.3571 | | -0.9503 | 0.9786 | 7 | 0.0645 | -1.8361 | 1.3336 |
| 8 | 0.0797 | -2.0064 | 1.4175 | | -0.7793 | 0.9188 | 8 | 0.0797 | -1.9639 | 1.3954 |
| 10 | 0.0990 | -2.0724 | 1.4514 | 0.5770 | -0.2819 | 0.7479 | 10 | 0.0990 | -2.0252 -2.0225 | 1.4260 |
| 11 | 0.1700 | -2.0694 | 1.4524 | 0.9000 | 0.0687 | 0.6255 | 11 | 0.1700 | -2.0234 | 1.4244 |
| 12 | 0.2200 | -2.0247 | 1.4282 | 1.0000 | 0.1847 | 0.5837 | 12 | 0.2200 | -1.9486 | 1.3866 |
| 13 | 0.2595 | -1.9894 | 1.4094 | LOWER SU | IDEACE | | 13 | 0.2595 | -1.8861 -1.7588 | 1.3578 |
| 15 | 0.3397 | -1.5557 | 1.2108 | 0.0 | 0.6957 | 0.3744 | 14 | 0.:397 | -1.2719 | 1.0972 |
| 16 | 0.3900 | -1.1719 | 1.0594 | 0.0160 | 0.9590 | 0.2139 | 16 | 0.3800 | -0.7859 | 0.9203 |
| 17 | 0.4200 | -0.9066 | 0.9627 | 0.1060 | 0.6440 | 0.3988 | 17 | 0.4200 | -0.6626 | 0.8778 |
| 19 | 0.5000 | -0.5827 | 0.9847 | 0.2530 | 0.571! | 0.4314 | 19 | 0.5000 | -0.6830 | 0.8845 |
| 20 | 0.5395 | -0.5963 | 0.8894 | 0.4010 | 0.5405 | 0.4444 | 20 | 0.5395 | -0.7015 | 0.8909 |
| 21 | 0.5795 | -0.7099 | 0.8946 | 0.6010 | 0.4906 | 0.4654 | 21 | 0.5795 | -0.7011 | 0.8913 |
| 23 | 0.6600 | -0.7300 | 0.8999 | 1.0000 | 0.3929 | 0.5837 | 22 | 0.6200 | -0.6993 -0.6901 | 0.8902 |
| 24 | 0.7000 | -0.5679 | 0.8801 | | | | 24 | 0.7000 | -0.6200 | 0.8633 |
| 25 | 0.7525 | -0.5876 | 0.9526 | Run 278 | CP | ML | 25 | 0.7525 | -0.5428 | 0.8366 |
| 26 | 0.8275 | -0.5335 | 0.8336 | UPPER SL | | 71 | 26 | 0.7815 | -0.4997 | 0.8216 |
| 28 | 0.8500 | -0.3848 | 0.7828 | 0.0 | 0.2312 | 0.5663 | 28 | 0.8500 | -0.4103 | 0.7910 |
| LOWER | SUPFACE | | | 0.0130 | 0.4334 | 0.4884 | LOWER | SURFACE | | |
| 1 2 | 0.0032 | 0.5566 | 0.4375 | 0.1040 | 0.4036 | 0.5003 | 1 | 0.0 | 0.6164 | 0.4111 |
| 3 | 0.0070 | 1.1054 | 0.0384 | 0.1640 | 0.0977 | 0.6147 | 2 3 | 0.0032 | 1.1103 | 0.0 |
| 4 | 0.0182 | 0.8941 | 0.2664 | 0.2480 | -0.7490 | 0.7354 | 4 | 0.0182 | 0.8586 | 0.2879 |
| 5 | 0.0487 | 0.6346 | 0.4033 | 0.2300 | -0.3656 -0.3068 | 0.7756 | 5 | 0.0487 | 0.5916 | 0.4220 |
| 7 | 0.0987 | 0.4482 | 0.4828 | 0.5770 | -0.1239 | 0.6928 | 6 7 | 0.0987 | 0.4050 | 0.4097 |
| 8 | 0.2000 | 0.2726 | 0.5510 | 0.7380 | -0.0754 | 0.6763 | 8 | 0.2000 | 0.2288 | 0.5671 |
| 9 | 0.2492 | 0.2051 | 0.5761 | 0.000 | -0.0476 | 0.6659 | 1 9 | 0.2402 | 0.16'1 | 0.5919 |
| 10 | 0.4492 | 0.1392 | 0.6000 | 1.0000 | -0.0251 | 0.6591 | 10 | 0.3492 | 0.0948 | 0.6157 |
| 11 | 0.5500 | 0.1712 | 0.6088 | LOWER SE | 0.2312 | 0.5663 | 11 | 0.5500 | 0.0725 | 0.6016 |
| 13 | 0.6450 | 0.3108 | 0.5365 | 0.0 | 0.5806 | 0.4267 | 13 | 0.6450 | 0.2972 | 0.5413 |
| 14 | 0.7000 | 0.3186 | 0.5333 | 0.0440 | 0.6972 | 0.3735 | 1 14 | 0.7000 | 0.3275 | 0.5298 |
| 15 | 0.7500 | 0.3136 | 0.5356 | 0.1360 | 0.6313 | 0.4043 | 15 | 0.7500 | 0.4237 | 0.4922 |
| 17 | 0.7670 | 0.2780 | 0.5491 | 0.2520 | 0.5374 | 0.4650 | . 17 | 0.7670 | 0.4327 | 0.4984 |
| 18 | 0.7900 | 0.2750 | 0.5502 | 0.6010 | 0.4224 | 0.4929 | 18 | 0.7900 | 0.4434 | 0.4844 |
| 19 | 0.8025 | 0.3277 | 0.5300 | 0.8050 | 0.2956 | 0.5419 | 20 | 0.8025 | -0.4103 | 0.5084 |
| 20 | 0.6500 | - 3. 3646 | 0. 1825 | 1.0000 | -0.0251 | 0.6581 | 1 20 | 0.0.00 | 0103 | 3. 710 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Run 2 | 271 X/L | SECTION | | Run 271 | FLAP | 41 | Run 2 | | SECTION | HS ML |
| NR UPPER | X/L SUFFACE | CP | ML | UPPER SU | CP RFACE | ML | NR UPPER | X/L SURFACE | CP | ML |
| UPPER | X/L SURFACE 0.0 | CP 0.0237 | ML 0.2211 | UPPER SU | CP RFACE 0.1857 | 0.5387 | NR UPPER | X/L SURFACE 0.0 | CP 0.9857 | ML 0.2007 |
| NR UPPER 1 2 | X/L SURFACE 0.0 0.0032 | 0.0237 -0.2810 | ML 0.2211 0.6879 | 0.0 0.0130 | CP RFACE 0.1857 0.3692 | 0.5387 | NR UPPER 1 2 | X/L SURFACE 0.0' 0.0032 | 0.9857 -0.1162 | ML 0.2007 0.6903 |
| NR UPPER 1 2 3 | X/L SURFACE 0.0 0.0032 0.032 0.037 | 0.9237 -0.2810 -0.7508 -0.8422 | ML 0.2211 0.6879 0.8312 0.8590 | X/L UPPER SUI 0.0 0.0130 0.0440 0.7040 | CP RFACE 0.1857 | 0.5387 0.4745 0.4858 0.5071 | NR UPPER 1 2 3 | X/L SURFACE 0.0' 0.0032 0.0087 0.0155 | 0.9857 -0.1162 -0.5794 -0.6890 | ML 0.2007 0.6903 0.8494 0.8866 |
| NR UPPER 1 2 3 4 | X/L SURFACE 0.0 0.0032 0.0387 0.0155 0.0250 | 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 | X/L UPPER SUI 0.0 0.0130 0.0440 0.7040 0.7640 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 | 0.5387 0.4745 0.4858 0.5071 0.5658 | NR UPPER 1 2 3 4 | X/L SURFACE 0.0' 0.0032 0.0087 0.0155 0.0250 | 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 |
| NR UPPER 1 2 3 4 5 | X/L SURFACE 0.0 0.0032 0.0387 0.0155 0.0250 0.0345 | 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 | X/L UPPER SUI 0.0 0.0130 0.0440 0.7040 0.1640 0.2480 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.6438 | NR UPPER 1 2 3 4 5 | X/L SURFACE 0.0' 0.0032 0.0087 0.0155 0.0250 0.0345 | 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 |
| NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.0032 0.0155 0.0250 0.0345 0.0645 0.0797 | 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0142 | X/L UPPER SUI 0.0 0.0130 0.0440 0.7040 0.7640 0.2480 0.3300 0.4100 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 | 0.5387 0.4745 0.4858 0.5071 0.5658 | NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0' 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 | 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.9987 -1.3207 -1.4663 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 |
| NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.0032 0.0387 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 | CP 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0142 0.9864 | X/L UPPER SUI 0.0 0.0130 0.0440 0.7040 0.1640 0.2480 0.3300 0.4100 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.2873 -0.1326 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.6438 0.7083 0.6897 0.6417 | NR UPPER 1 2 3 4 5 6 7 8 9 | X/L SURFACE 0.0' 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 | 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.4663 -1.5020 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 |
| NR UPPER 1 2 3 4 5 6 7 8 9 | X/L SURFACE 0.0 0.0032 0.035 0.0250 0.0245 0.0645 0.0797 0.0990 0.1400 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0142 0.9864 0.9187 | X/L UPPER SUI 0.0 0.0130 0.0440 0.7040 0.2460 0.3300 0.4100 0.5770 0.7380 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.2873 -0.1326 -0.1135 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.6438 0.7083 0.6897 0.6417 0.6357 | NR UPPER 1 2 3 4 5 6 7 8 9 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0000 0.1400 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.4663 -1.5020 -1.3019 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 |
| NR UPPER 1 2 3 4 5 6 7 8 | X/L SURFACE 0.0 0.0032 0.0387 0.0155 0.0250 0.0345 0.0645 0.0645 0.0797 0.0990 0.1400 0.1700 0.2200 | CP 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0142 0.9864 0.9187 0.8702 0.8597 | X/L UPPER SUI 0.0 0.0130 0.0440 0.1040 0.1640 0.2480 0.3300 0.4100 0.5770 0.7380 0.9000 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.2873 -0.1326 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.6438 0.7083 0.6897 0.6417 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0797 0.0990 0.1400 0.1760 0.2700 | 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.4663 -1.5020 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | X/L SURFACE 0.0 0.0032 0.0387 0.0250 0.0345 0.0645 0.0797 0.1400 0.1700 0.1700 0.2200 0.2595 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.8455 -0.8186 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0142 0.9864 0.9187 0.8702 0.8597 | X/L UPPER SUI 0.0 0.0130 0.0140 0.1040 0.1040 0.2480 0.3300 0.4100 0.5770 0.7380 0.9000 1.0000 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.1326 -0.1135 -0.1081 -0.0890 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.6438 0.7083 0.6897 0.6417 0.6357 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.000 0.1400 0.1760 0.2200 0.2595 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.3207 -1.3019 -1.1541 -0.9905 -0.8624 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9939 0.9477 |
| NR UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 | X/L SURFACE 0.0 0.0032 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 0.1400 0.1700 0.2200 0.2595 0.2995 | CP 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.9455 -0.8186 -0.7531 | ML 0.2211 0.6879 0.8590 0.9149 0.9727 1.0142 0.9864 0.9187 0.8597 0.8597 0.8515 | X/L UPPER SUI 0.0 0.0130 0.70440 0.1640 0.2680 0.3300 0.4100 0.5770 0.7380 0.9000 1.0000 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.2873 -0.1326 -0.1135 -0.1081 -0.0890 RFACE | 0.5387 0.4745 0.4745 0.4858 0.5071 0.5658 0.6438 0.7083 0.6897 0.6417 0.6357 0.6342 0.6283 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.0990 0.1400 0.1740 0.2200 0.2595 0.2995 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.3019 -1.3019 -1.1541 -0.9905 -0.8624 -0.8002 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9939 0.9477 0.9255 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | X/L SURFACE 0.0 0.0032 0.0250 0.0345 0.0345 0.0645 0.0797 0.1400 0.1700 0.1700 0.2200 0.2595 0.3397 0.3800 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.8455 -0.8186 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0179 1.0179 0.9187 0.8597 0.8515 0.8231 0.9145 | UPPER SUI 0.0 0.0130 0.1040 0.1040 0.1040 0.2480 0.3300 0.4100 0.5770 0.7380 0.9000 1.0000 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.1326 -0.1135 -0.1081 -0.0890 RFACE 0.1857 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.7083 0.6897 0.6417 0.6357 0.6342 0.6283 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | X/L SURFACE 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.000 0.1400 0.1760 0.2200 0.2595 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.3207 -1.3019 -1.1541 -0.9905 -0.8624 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9939 0.9477 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | X/L SURFACE 0.0 0.0032 0.0155 0.0250 0.03645 0.0767 0.0990 0.1400 0.1700 0.2200 0.2595 0.2995 0.33800 0.4200 | 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.8455 -0.8186 -0.7531 -0.7244 -0.6961 -0.6751 | ML 0.2211 0.68312 0.8590 0.9149 1.0179 1.0179 1.0142 0.9864 0.9787 0.8597 0.8597 0.8231 0.8231 0.8079 | X/L UPPER SUI 0-01 0-0130 0-0440 0-1040 0-2480 0-3300 0-4100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-0160 0-0160 0-0160 0-0160 0-0160 0-0160 0-0160 0-0160 0-0160 0-0160 0-0440 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.1326 -0.1135 -0.1081 -0.0890 RFACE 0.1857 0.5203 0.6356 | 0.5387 0.4745 0.4858 0.5071 0.5658 0.6438 0.6897 0.6417 0.6357 0.6342 0.6283 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 | X/L 0.0° 0.0032 0.0087 0.0087 0.0157 0.0250 0.0345 0.0797 0.0990 0.1700 0.2795 0.2995 0.2995 0.2397 0.2800 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.9987 -1.3207 -1.3019 -1.5541 -0.9905 -0.8624 -0.8002 -0.7666 -0.7345 -0.7096 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9917 0.9255 0.9141 0.9024 0.8938 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | X/L SURFACE 0.0 0.0032 0.0155 0.0250 0.0345 0.0767 0.1400 0.1700 0.2200 0.2200 0.2595 0.2995 0.2990 0.3420 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2990 0.2595 0.2 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.8455 -0.8781 -0.6961 -0.6751 -0.6751 -0.6751 | ML 0.2211 0.6879 0.8319 0.8590 0.9149 1.0179 1.0179 1.0142 0.9187 0.8702 0.8515 0.8316 0.8231 0.9145 0.8079 | UPPER SUI 0-0 0-0130 0-0440 0-10440 0-1640 0-2480 0-3300 0-4100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-0160 0-0440 0-1060 | CP RFACE 0.1857 0.3979 0.2777 0.1045 -0.1389 -0.3865 -0.1276 -0.135 -0.1081 -0.0890 0.1857 0.1857 0.5747 | 0.5387 0.4745 0.4858 0.5071 0.5559 0.6438 0.7083 0.6897 0.6417 0.6357 0.6357 0.6283 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | X/L 0.0° 0.0037 0.0037 0.0037 0.0155 0.0250 0.0245 0.0797 0.1400 0.1700 0.2795 0.2895 0.2895 0.2897 0.3800 0.4200 | 0.9857 -0.1162 -0.5794 -0.6890 -1.3207 -1.3207 -1.4663 -1.5020 -1.3019 -1.1541 -0.9905 -0.8624 -0.8624 -0.7666 -0.7102 | ML 0.2007 0.6903 0.8494 0.8869 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9939 0.9477 0.9255 0.9141 0.9024 0.8938 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | X/L 0.0 0.0032 0.0037 0.0155 0.0250 0.0250 0.0747 0.0747 0.0990 0.1700 0.1700 0.2595 0.2995 0.3397 0.3800 0.4600 0.5395 | 0.9237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.8455 -0.8186 -0.7531 -0.7244 -0.6961 -0.6751 | ML 0.2211 0.68312 0.8590 0.9149 1.0179 1.0179 1.0142 0.9864 0.9787 0.8597 0.8597 0.8231 0.8231 0.8079 | X/L UPPER SUI 0-0130 0-0130 0-01440 0-1440 0-1440 0-2480 0-3300 0-6100 0-5770 0-7380 0-9000 1-0000 1-0000 1-0000 0-0160 0-0160 | CP RFACE 0.1857 0.3692 0.3379 0.2777 0.1045 -0.1389 -0.3465 -0.1326 -0.1135 -0.1081 -0.0890 RFACE 0.1857 0.5203 0.6356 | 0.5387 0.4745 0.4858 0.5071 0.5071 0.5058 0.6438 0.6087 0.6417 0.6357 0.6362 0.6283 0.5387 0.4178 0.3702 0.3957 0.4323 0.4498 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 19 | X/L 0.0° 0.0032 0.0087 0.0087 0.0157 0.0250 0.0345 0.0797 0.0990 0.1700 0.2795 0.2995 0.2995 0.2397 0.2800 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.9987 -1.3207 -1.3019 -1.5541 -0.9905 -0.8624 -0.8002 -0.7666 -0.7345 -0.7096 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0528 0.9917 0.9255 0.9141 0.9024 0.8938 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 19 22 21 | X/L 0.0 0.003 0.003 0.0155 0.0250 0.0745 0.0647 0.0747 0.0990 0.1700 0.2200 0.2595 0.2995 0.3870 0.4200 0.4200 0.5000 0.5375 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8755 -0.8186 -0.7531 -0.7541 -0.6761 -0.6761 -0.6845 -0.6845 | ML 0.2211 0.6879 0.8312 0.8590 0.9127 1.0172 0.9864 0.9187 0.8791 0.8791 0.8791 0.8079 0.8079 0.8080 | X/L UPPER SUI 0-01 30 0-01 30 0-0440 0-1440 0-1440 0-2480 0-3300 0-4100 0-5770 0-7380 0-9000 1-0000 1-0000 1-0000 0-0440 0-1060 0-2530 0-4010 0-2610 | CP PEACE 0.1857 0.3692 0.2379 0.2777 0.1045 0.1045 0.1389 -0.3465 -0.1326 -0.135 -0.135 -0.1081 0.1857 0.6356 0.5465 0.4825 0.4825 0.4825 | 0.5387 0.4745 0.4858 0.5071 0.5558 0.6438 0.6687 0.6417 0.6417 0.6382 0.6283 0.5387 0.4178 0.3702 0.3957 0.4958 0.4958 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 | X/L 0.03 0.0032 0.0032 0.0035 0.0155 0.0645 0.0645 0.0645 0.0797 0.0000 0.1470 0.2595 0.295 0.295 0.295 0.295 0.295 | CP 0857 -0.1162 -0.5754 -0.6890 -0.8843 -1.0987 -1.2007 -1.4663 -1.5020 -0.905 -0.8624 -0.905 -0.8002 -0.7345 -0.7345 -0.7326 -0.7326 -0.7326 -0.7326 -0.7326 -0.7326 -0.7326 -0.7326 -0.7326 | ML 0.2007 0.6903 0.8494 0.8864 0.9549 1.0320 1.1179 1.1792 1.1885 1.10918 0.9919 0.9477 0.9255 0.9141 0.8938 0.9996 0.9000 0.8979 0.8979 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 19 20 21 22 | X/L 0.0 0.0032 0.0032 0.0250 0.0250 0.0250 0.0250 0.0797 0.0990 0.1700 0.1700 0.2595 0.2990 0.3397 0.3800 0.4200 0.4500 0.5395 0.5795 | CP 0.º237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.3412 -0.8455 -0.8186 -0.7531 -0.7244 -0.6941 -0.6725 -0.6855 -0.6787 -0.6787 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0172 0.9864 0.9187 0.8702 0.8597 0.8515 0.8316 0.8107 0.8069 0.8079 0.8009 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1640 0-2480 0-3300 0-4100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-0000 0-0160 0-0410 0-0400 | CP PEACE 0.1857 0.3379 0.2777 0.1045 0.1045 0.1045 0.1389 -0.3465 0.1326 -0.1135 -0.1091 -0.0890 RFACE 0.1857 0.5203 0.4359 0.4359 0.4359 0.4359 | 0.5387 0.4745 0.4658 0.5071 0.5071 0.5559 0.6483 0.697 0.6417 0.6357 0.6417 0.6283 0.5387 0.4178 0.3702 0.3797 0.4223 0.423 0.423 0.4257 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 19 20 22 22 | X/L 0.0032 0.0032 0.0032 0.0035 0.0155 0.0250 0.0245 0.0797 0.0000 0.1740 0.2700 0.2700 0.2795 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 0.2995 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.987 -1.3207 -1.4663 -1.5020 -1.3019 -0.9905 -0.9905 -0.7906 -0.7066 -0.7726 -0.7076 -0.7102 -0.7166 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0578 0.9919 0.9477 0.9255 0.9141 0.9024 0.8939 0.8939 0.8939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 19 22 21 | X/L 0-0 0-0032 0-0037 0-0135 0-0245 0-0745 0-0740 0-17400 0-17700 0-2200 0-2450 0-3800 0-4600 0-5000 0-5795 0-6600 | CP 0-237 0-2810 0-2810 0-8422 1-0250 1-2113 1-13527 1-3412 1-2553 1-0394 0-8797 0-9455 0-8186 0-7531 0-7244 0-6751 0-6851 0-6851 0-6857 0-6857 0-6857 0-6721 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0179 1.0179 0.8757 0.8555 0.8231 0.8079 0.8106 0.8107 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1640 0-2480 0-3300 0-4100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-000 0-0160 0-0440 0-1060 0-2530 0-4010 0-6010 0-8050 1-0000 | CP FACE 0.1857 0.3379 0.2777 0.1045 0.1045 0.1045 0.2873 0.1326 0.1326 0.1135 0.1081 0.0890 RFACE 0.1857 0.5747 0.4855 0.4356 0.4356 0.4356 0.4356 0.4356 | 0.5387 0.4745 0.4658 0.5071 0.5071 0.5559 0.6438 0.7083 0.6897 0.6342 0.6283 0.5387 0.4178 0.3702 0.4178 0.3702 0.4478 0.4478 0.4478 0.4478 0.4478 0.4478 0.4478 0.4478 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 | X/L 0.01 0.0032 0.0087 0.0155 0.0250 0.0345 0.0645 0.0797 0.1400 0.1200 0.2700 0.2700 0.2800 0.3900 0.4600 0.5000 0.5195 0.3975 0.6200 | CP 0.9857-0.1167 -0.1167 -0.5794 -0.6890 -0.8843 -1.0987 -1.3207 -1.4507 -0.9905 -0.9905 -0.8624 -0.7345 -0.7096 -0.7345 -0.7096 -0.7325 -0.7102 -0.7256 -0.7102 -0.71 | ML 0.2007 0.6903 0.8494 0.8864 0.9549 1.0320 1.1179 1.1792 1.1885 1.10918 0.9919 0.9477 0.9255 0.9141 0.8938 0.9996 0.9000 0.8979 0.8979 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 11 18 19 20 21 22 23 24 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | X/L 0.0 0.0032 0.0037 0.0155 0.0245 0.0345 0.0767 0.1960 0.1700 0.2200 0.2200 0.2995 0.3380 0.4200 0.4000 0.5000 0.5752 0.6600 0.7000 0.7525 | CP 0.º237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8797 -0.8456 -0.7531 -0.7244 -0.6751 -0.6755 -0.6851 -0.6655 -0.6767 -0.6656 -0.6663 -0.6 | ML 0.2211 0.6879 0.8312 0.8590 0.9127 1.0172 0.9864 0.9187 0.8702 0.8597 0.8702 0.8515 0.8231 0.9145 0.8079 0.8079 0.8079 0.8079 | X/L UPPER SUI 0-0 0-0130 0-0140 0-1940 0-1940 0-1840 0-2480 0-3300 0-6100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-0 0-0160 0-0440 0-1060 0-2530 0-4010 0-8050 1-0000 Run 277 | CP PEACE 0.1857 0.3692 0.3379 0.2777 0.1045 0.1045 0.1389 -0.3465 -0.1256 -0.1135 -0.1081 -0.0890 RFACE 0.1857 0.5253 0.4855 0.4855 0.4359 0.3660 0.3741 -0.0890 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6697 0.6417 0.6357 0.642 0.6283 0.5387 0.4178 0.3957 0.498 0.498 0.4757 | NR UPPER 1 2 3 4 5 6 7 8 9 10 112 113 115 117 119 120 121 121 121 121 121 121 121 121 121 | X/L 0.01 0.0032 0.0087 0.0155 0.0250 0.0345 0.0345 0.0797 0.01400 0.17400 0.2700 0.2800 0.3800 0.4200 0.4600 0.5955 0.3975 0.65000 0.5955 0.65000 0.7505 | CP 0.9857 -0.1162 -0.5764 -0.6890 -0.8863 -1.0987 -1.3663 -1.5020 -1.3019 -1.1561 -0.9662 -0.8662 -0.8662 -0.7666 -0.7345 -0.7076 -0.7102 -0.7102 -0.7102 -0.7102 -0.7102 -0.7102 -0.7102 -0.7106 -0.7 | ML 0.2007 0.6903 0.8494 0.8864 0.9549 1.0320 1.11792 1.1885 1.1091 1.0578 0.9947 0.9245 0.8939 0.9966 0.8979 0.8979 0.8923 0.8852 0.8832 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 11 7 11 19 20 21 22 23 24 5 26 | X/L 0-0 0-032 0-037 0-0155 0-0250 0-0345 0-0767 0-0156 0-0767 0-0990 0-1400 0-1700 0-2200 0-2565 0-3987 0-3805 0-5765 0-6600 0-7000 0-7815 | CP 0-2237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8455 -0.8186 -0.7531 -0.7244 -0.6751 -0.6755 -0.6851 -0.6851 -0.6864 -0.6761 -0.6 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.9864 0.9187 0.8575 0.8231 0.8145 0.8231 0.8169 0.8073 0.8073 0.8073 0.8073 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1640 0-2480 0-3300 0-4100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-000 0-0160 0-0440 0-1060 0-2530 0-4010 0-6010 0-8050 1-0000 | CP PFACE 0.1857 0.3039 0.2777 0.1045 0.1045 0.1045 0.1045 0.1389 -0.3465 0.2873 0.1326 0.1135 0.1091 -0.0890 RFACE 0.1857 0.4825 0.4359 0.4359 0.4360 0.7341 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6697 0.6417 0.6357 0.6417 0.6357 0.6417 0.3957 0.4178 0.3957 0.498 0.4757 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 12 02 12 22 3 22 5 26 7 | X/L 0.01 0.0032 0.0032 0.0032 0.0155 0.0250 0.0345 0.0345 0.0797 0.0000 0.17400 0.17400 0.2700 0.2397 0.3800 0.4200 0.5995 0.3997 0.3800 0.6600 0.5995 0.2995 0.3997 0.3800 0.6000 0.57955 0.6200 0.6000 0.7000 | CP 0.9857 -0.1162 -0.5794 -0.6893 -1.9087 -1.3019 -1.1541 -0.9905 -0.8624 -0.9005 -0.7666 -0.7345 -0.7102 -0.7102 -0.7276 -0.7102 -0.7 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0578 0.9379 0.9477 0.9074 0.8978 0.8979 0.8978 |
| NR UPPER 1 2 3 4 5 6 6 7 8 9 10 11 12 13 11 15 16 17 18 19 20 12 22 23 22 25 26 27 | X/L 0.0 0.0032 0.0032 0.0250 0.0250 0.0250 0.0250 0.0757 0.0797 0.0990 0.1400 0.1700 0.2595 0.2995 0.2995 0.3397 0.3800 0.4200 0.4200 0.5395 0.5795 0.595 0.7915 0.7915 0.7915 | CP 0.º237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.8455 -0.6815 -0.6725 -0.6851 -0.6767 -0.68643 -0.5240 -0.4879 -0.4879 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.01742 0.9864 0.9187 0.8702 0.8597 0.8702 0.8597 0.8702 0.8079 0.8069 0.8107 0.8079 0.8079 0.8079 0.8079 0.8079 0.8079 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1040 0-2480 0-4100 0-5770 0-7380 0-9000 1-0000 LOWER SU 0-0160 0-0400 0-0550 0-4010 0-6010 0-6010 0-6010 0-8050 1-0000 Run 277 X/L UPPER SU | CP PFACE 0.1857 0.3692 0.3777 0.3777 0.1045 0.1045 0.1045 0.1857 0.1857 0.1081 0.6356 0.57747 0.5203 0.4825 0.4825 0.4825 0.4825 0.4825 0.4825 0.4825 | 0.5387 0.4745 0.4658 0.5071 0.5071 0.6559 0.6438 0.7083 0.6897 0.6342 0.6283 0.5387 0.4178 0.3707 0.4178 0.3707 0.4478 0.4478 0.4478 0.4478 0.4478 0.4478 | NR UPPER 1 2 3 4 5 6 7 8 9 101 112 114 115 117 119 201 22 23 24 25 27 | X/L 0.0032 0.0032 0.0032 0.0035 0.0155 0.0250 0.0245 0.0797 0.0000 0.1740 0.2595 0.2595 0.2397 0.3800 0.4200 0.4200 0.5000 0.5000 0.5000 0.6000 0.7525 0.7525 0.7525 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.0987 -1.4663 -1.5020 -1.4663 -1.5020 -0.30905 -0.8624 -0.8002 -0.7666 -0.7345 -0.7096 -0.7102 -0.7276 -0.7102 -0.7276 -0.7102 -0.7276 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0.7286 -0.7102 -0. | ML 0.2007 0.6903 0.8494 0.8886 0.9549 1.0320 1.11732 1.1885 1.1091 1.0578 0.9919 0.9477 0.9255 0.9141 0.9024 0.8939 0.9949 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 19 20 1 22 2 24 5 26 7 28 | X/L 0-0 0-032 0-037 0-0155 0-0250 0-0345 0-0767 0-0156 0-0767 0-0990 0-1400 0-1700 0-2200 0-2565 0-3987 0-3805 0-5765 0-6600 0-7000 0-7815 | CP 0-237 0-2810 0-2810 0-2810 0-8422 1-0250 1-2113 1-1527 1-3412 1-2553 1-0394 0-8797 0-9455 0-8186 0-7531 0-0724 0-6751 0-6851 0-6851 0-6867 0-6721 0-6453 0-5930 0-5930 0-4278 0-4278 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.9864 0.9187 0.8575 0.8231 0.8145 0.8231 0.8169 0.8073 0.8073 0.8073 0.8073 | X/L UPPER SUI 0-01 30 0-01 30 0-01 30 0-10 0- | CP PFACE 0.1857 0.3039 0.2777 0.1045 0.1045 0.1045 0.1266 0.1267 0.1081 0.1081 0.1080 0.1877 0.1081 0.1081 0.1081 0.1081 0.1080 PFACE 0.1081 | 0.5387 0.4745 0.4658 0.5071 0.5059 0.6438 0.6897 0.6342 0.6283 0.5387 0.4178 0.3702 0.3957 0.4223 0.4478 0.4757 0.4523 0.4498 0.4757 | NR UPPER 1 2 3 4 5 6 7 8 9 101 112 114 115 117 119 201 22 23 24 25 27 | X/L 0.01 0.0032 0.0032 0.0032 0.0155 0.0250 0.0345 0.0345 0.0797 0.0000 0.17400 0.17400 0.2700 0.2397 0.3800 0.4200 0.5995 0.3997 0.3800 0.6600 0.5995 0.2995 0.3997 0.3800 0.6000 0.57955 0.6200 0.6000 0.7000 | CP 0.9857 -0.1162 -0.5794 -0.6890 -0.8843 -1.9987 -1.3020 -1.4663 -1.5020 -1.3019 -1.1541 -0.9905 -0.9905 -0.7066 -0.7345 -0.7076 -0.7102 -0.7 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0578 0.9379 0.9477 0.9074 0.8978 0.8979 0.8978 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 17 19 20 12 22 3 24 5 26 27 28 E LOWER | X/L 0-0 0-032 0-035 0-025 0-0245 0-025 0-0245 0-0745 0-0799 0-1400 0-1700 0-2200 0-2200 0-2200 0-2905 0-3800 0-4200 0-5305 0-6400 0-7525 0-7815 0-8250 0-8500 0-7502 0-8500 0-7502 0-8500 0-7502 0-8500 0-7502 0-8500 0-7502 0-8500 0-7502 0-8500 0-9500 0-9500 0-7502 0-9500 0-9500 0-9500 0-7502 0-9500 0-950 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8745 -0.8186 -0.7531 -0.7244 -0.8751 -0.6825 -0.6851 -0.6721 -0.6721 -0.6721 -0.6721 -0.6829 -0.4278 -0.4278 -0.4278 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0179 0.9187 0.87597 0.85597 0.8515 0.80231 0.8145 0.8079 0.8069 0.8069 0.8069 0.8069 0.7619 0.7496 | X/L UPPER SUI 0-0 0-0130 0-0140 0-14 | CP PFACE 0.1857 0.3692 0.3777 0.3777 0.1045 0.1045 0.1045 0.1857 0.1857 0.1081 0.6356 0.57747 0.5203 0.4825 0.4825 0.4825 0.4825 0.4825 0.4825 0.4825 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6638 0.6637 0.6417 0.6357 0.6342 0.6283 0.5387 0.4178 0.3702 0.4757 0.4323 0.4458 0.4757 0.4521 0.6283 | NR UPPER 3 4 5 6 7 8 9 10 11 12 12 11 11 11 11 11 11 11 12 12 12 | X/L 0.01 0.0032 0.0087 0.0159 0.0250 0.0345 0.0797 0.0545 0.0797 0.2200 0.1400 0.1700 0.2200 0.4600 0.5995 0.3997 0.4600 0.5995 0.3997 0.4600 0.5995 0.3995 0.4600 0.5995 | CP 0.9857 -0.1162 -0.5754 -0.6890 -0.8843 -1.9987 -1.3007 -1.4561 -0.9905 -0.8624 -0.9005 -0.8624 -0.7105 -0.7345 -0.7345 -0.7096 -0.7125 -0.7325 -0.7 | ML 0.2007 0.6903 0.8494 0.8886 0.9549 1.0320 1.1159 1.1732 1.1091 1.0578 0.9255 0.9141 0.9255 0.9141 0.9026 0.8979 0.8978 0.8938 0.8939 0.8977 0.8167 0.7963 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 19 20 1 22 2 24 5 26 7 28 | X/L 0-0 0-0032 0-0032 0-0250 0-0250 0-0245 0-0767 0-0990 0-1400 0-1700 0-2200 0-2595 0-3397 0-3800 0-4200 0-5000 0-5000 0-5000 0-7000 | CP 0-237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8186 -0.8797 -0.9455 -0.8186 -0.7531 -0.7531 -0.7625 -0.6851 -0.6725 -0.6851 -0.6725 -0.6852 -0.6721 -0.6643 -0.5991 -0.4278 -0.4909 | ML 0.2211 0.6879 0.8312 0.8599 0.9149 0.9727 1.0142 0.9864 0.9187 0.8515 0.8231 0.8145 0.8079 0.8069 0.8079 0.8069 0.7846 0.7326 0.7246 | X/L UPPER SUI 0-0 0-0130 0-0140 0-1440 0-1440 0-1440 0-1440 0-1440 0-15 | CP PEACE 0.1857 0.3697 0.3777 0.1045 0.1045 0.1045 0.11389 -0.3465 -0.1135 -0.1826 -0.1135 -0.1081 -0.0890 RFACE 0.1857 0.6356 0.5747 0.4855 0.4359 0.3660 0.3783 0.3484 0.3783 0.3484 0.3783 0.3484 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6697 0.6457 0.6362 0.6283 0.5387 0.4178 0.3702 0.3957 0.4987 0.4780 0.4757 0.45221 0.6283 | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 28 10 10 10 10 10 10 10 10 10 10 10 10 10 | X/L 0.01 0.0032 0.0032 0.0032 0.0155 0.0250 0.0345 0.0797 0.09690 0.1400 0.1740 0.2700 0.2700 0.2397 0.3890 0.4200 0.595 0.2955 | CP 0.9857 -0.1162 -0.5794 -0.6894 -1.0987 -1.3207 -1.4663 -1.5020 -1.3019 -1.1541 -0.905 -0.8624 -0.7345 -0.7066 -0.7345 -0.7026 -0.7102 -0.7276 -0.7102 -0.7256 -0.7276 -0.7110 -0.7026 -0.4861 -0.4957 -0.4957 -0.49551 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0578 0.9939 0.9417 0.9255 0.9141 0.9024 0.8979 0.9477 0.9255 0.8923 0.8939 0.8975 0.8966 0.0000 0.8975 0.8966 0.8975 0.8966 0.9966 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 11 7 11 19 20 1 22 23 24 5 26 27 28 LOWER 2 3 4 | X/L 0-0 0-032 0-037 0-0155 0-0250 0-0345 0-0767 0-0160 0-1700 0-1700 0-2200 0-2595 0-3387 0-3805 0-4200 0-5000 0-5000 0-5000 0-7 | CP 0-237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8186 -0.7531 -0.7244 -0.6961 -0.6755 -0.6865 -0.6867 -0.6721 -0.6643 -0.5909 -0.4278 -0.4278 -0.4278 -0.43870 -0.5551 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.9187 0.8579 0.8597 0.8595 0.8314 0.8197 0.8093 0.8097 0.8097 0.8097 0.8097 0.8097 0.8097 0.8097 0.8097 0.8097 0.8097 0.8097 | X/L UPPER SUI 0-0 0-0130 0-01440 0-1340 0-1640 0-2480 0-4100 0-5770 0-7380 0-9000 1-0000 0-0160 0-04100 0-0550 0-0610 0-06010 | CP PFACE 0.1857 0.3692 0.3379 0.2777 0.1045 0.1045 0.1389 -0.3465 -0.2873 0.1326 -0.1081 -0.04855 0.4855 0.4359 0.3640 0.7344 0.3783 0.3783 0.3783 0.3783 | 0.5387 0.4745 0.4658 0.5071 0.5058 0.6038 0.6037 0.6417 0.6357 0.6357 0.4358 0.3702 0.3957 0.4478 0.3702 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 24 25 26 27 28 28 28 29 20 20 21 21 21 22 23 24 24 25 26 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | X/L 0.0' 0.0032 0.0032 0.0032 0.0035 0.0155 0.0250 0.0345 0.0797 0.0900 0.1700 0.2700 0.2700 0.2905 0.3997 0.3800 0.5005 0.395 0.2955 0.2000 0.55755 0.2000 0.7525 0.2000 0.7525 0.2000 0.7525 0.2000 0.7525 0.2000 0.75000 | CP 0.9857 -0.1162 -0.5794 -0.6884 -1.0987 -1.3207 -1.4663 -1.5029 -1.1541 -0.9905 -0.8624 -0.7345 -0.7026 -0.7102 -0.7666 -0.7110 -0.7026 -0.4861 -0.4861 -0.4965 -0.3961 -0.4965 -0.3961 -0.9905 -0.6896 -0.7110 -0.7026 -0.7150 -0.7026 -0.7150 -0.7026 -0.7150 -0.7026 -0.7150 -0.7026 -0.7026 -0.7026 -0.7026 -0.5485 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0578 0.9939 0.9477 0.9025 0.9141 0.9038 0.8939 0.8978 0.8939 0.8978 0.8939 0.8978 0.8939 0.8978 0.8939 0.8939 0.8939 0.8939 0.8939 0.8939 0.8939 0.8938 0.8939 0.8938 0.8939 0.8938 0.8939 0.8938 0.8939 0.8938 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 19 20 1 22 23 24 25 27 8 LOWER 2 3 4 5 | X/L 0.0 0.0032 0.0037 0.0155 0.0245 0.0767 0.0156 0.0767 0.1400 0.1700 0.2200 0.2200 0.2995 0.3800 0.4200 0.5000 0.5000 0.5705 0.6600 0.7000 0.7525 0.7815 0.8250 0 | CP 0.º237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.4455 -0.4815 -0.6725 -0.6815 -0.6725 -0.6815 -0.6787 -0.6721 -0.6643 -0.5903 -0.5240 -0.4829 -0.4278 -0.4009 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 0.8702 0.9864 0.9187 0.8702 0.8597 0.8702 0.8597 0.8702 0.8079 0.8079 0.8079 0.8079 0.8079 0.7850 0.7619 0.7496 0.7216 0.7211 0.9184 0.7211 0.9184 0.7216 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1040 0-1240 0-2480 0-3300 0-6100 0-5770 0-7380 0-9000 1-0000 LOWER SUI 0-0 0-0160 0-0440 0-1060 0-2530 0-4010 0-8050 1-0000 Run 277 X/L UPPER SU 0-0 0-01540 0-1540 0-1540 0-1540 0-1540 0-2480 0-2480 0-2480 | CP PEACE 0.1857 0.3697 0.3779 0.2777 0.1045 0.1045 0.11389 -0.3465 -0.1135 -0.1081 0.0890 RFACE 0.1857 0.6356 0.5747 0.3665 0.4825 0.4859 0.3640 0.3783 0.3484 0.2929 0.0744 0.2315 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6897 0.6342 0.6283 0.5387 0.4178 0.3702 0.3957 0.4223 0.44757 0.4223 0.45801 0.5102 0.5218 0.5481 0.5402 0.5433 0.7652 0.7653 | NR UPPER 2 3 4 5 5 6 7 7 8 9 10 11 12 11 14 15 19 20 21 22 22 25 22 27 28 EOMER 2 3 4 5 | X/L 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0345 0.0797 0.17400 0.17400 0.17400 0.2700 0.2800 0.3800 0.4600 0.5295 0.397 0.4800 0.5995 0.5795 0.5795 0.5795 0.7815 0.8775 0.8775 0.8002 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 | CP 0.9857 -0.1162 -0.5794 -0.6890 -1.987 -1.3020 -1.4663 -1.5020 -1.3019 -1.1541 -0.9905 -0.8624 -0.8002 -0.7566 -0.7345 -0.7096 -0.7102 -0.7276 -0.7276 -0.72 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.11732 1.1885 1.1091 1.0578 0.9919 0.9477 0.9255 0.9141 0.9024 0.8939 0.9940 0.9947 0.9024 0.8939 0.8939 0.9000 0.8975 0.8939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 6 17 18 19 20 1 22 23 24 5 26 7 28 LOWER 2 3 4 5 6 | X/L 0-0 0-032 0-032 0-0250 0-0250 0-0245 0-0767 0-01690 0-1400 0-1700 0-2200 0-2595 0-3890 0-4200 0-5095 0-3990 0-4200 0-5095 0-3995 0-3995 0-5090 0-7525 0-6600 0-7625 0-7815 0-8275 0-8500 0-7815 0-8275 0-8000 0-7815 0-8000 0-9987 | CP 0-237 -0.2810 -0.8508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.255 -0.8186 -0.7531 -0.7244 -0.6751 -0.6651 -0.6651 -0.6651 -0.6653 -0.5725 -0.6855 -0.6887 -0.6721 -0.672 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0179 1.0179 0.8597 0.8595 0.8195 0.8197 0.8597 0.8097 | X/L UPPER SUI 0.0 0.0130 0.0130 0.0140 0.1640 0.3300 0.4100 0.5770 0.7380 0.9000 0.1060 0.000 0. | CP PEACE 0.1857 0.3697 0.3777 0.2777 0.10389 0.1045 0.1389 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6897 0.6342 0.6283 0.5387 0.3702 0.3957 0.4178 0.3702 0.4178 0.3702 0.4178 0.3702 0.4502 0.4502 0.5628 0.7628 0. | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 22 22 22 26 26 8 R | X/L 0.01 0.0032 0.0032 0.0037 0.0155 0.0250 0.0345 0.0345 0.0797 0.1400 0.1740 0.1740 0.2200 0.4200 0.4200 0.5595 0.2995 | CP 0.9857 -0.1162 -0.5794 -0.68843 -1.0987 -1.3019 -1.1591 -0.905 -0.8624 -0.905 -0.7056 -0.7056 -0.7102 -0.7276 -0.7102 -0.7276 -0.7102 -0.7276 -0.7102 -0.7351 -0.7026 -0.7102 -0.7026 -0.70 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 0.9939 0.9477 0.9255 0.9141 0.9039 0.8938 0.8939 0.8938 0.8939 0.89632 0.8938 0.8939 0.89632 0.8938 0.8939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 3 14 5 6 7 10 11 2 3 14 5 6 7 10 11 2 2 2 3 2 4 5 6 7 8 6 7 8 | X/L 0.0 0.0032 0.0037 0.0155 0.0245 0.0767 0.0156 0.0767 0.1400 0.1700 0.2200 0.2200 0.2995 0.3800 0.4200 0.5000 0.5000 0.5705 0.6600 0.7000 0.7525 0.7815 0.8250 0 | CP 0.º237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8797 -0.4455 -0.4815 -0.6725 -0.6815 -0.6725 -0.6815 -0.6787 -0.6721 -0.6643 -0.5903 -0.5240 -0.4829 -0.4278 -0.4009 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 0.8702 0.9864 0.9187 0.8702 0.8597 0.8702 0.8597 0.8702 0.8079 0.8079 0.8079 0.8079 0.8079 0.7850 0.7619 0.7496 0.7216 0.7211 0.9184 0.7211 0.9184 0.7216 | X/L UPPER SUI 0-01 0-0 | CP PEACE 0.1857 0.3692 0.3777 0.3777 0.1045 0.1045 0.1045 0.1326 | 0.5387 0.4745 0.4658 0.5071 0.5058 0.6038 0.6037 0.6417 0.6357 0.6357 0.4178 0.3702 0.3702 0.3702 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 0.5238 0.6283 | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 22 22 22 26 26 8 R | X/L 0.0 0.0032 0.0087 0.0155 0.0250 0.0345 0.0345 0.0797 0.17400 0.17400 0.17400 0.2700 0.2800 0.3800 0.4600 0.5295 0.397 0.4800 0.5995 0.5795 0.5795 0.5795 0.7815 0.8775 0.8775 0.8002 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 0.0007 | CP 0.9857 -0.1162 -0.5794 -0.6890 -1.987 -1.3020 -1.4663 -1.5020 -1.3019 -1.1541 -0.9905 -0.8624 -0.8002 -0.7566 -0.7345 -0.7096 -0.7102 -0.7276 -0.7276 -0.72 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.11732 1.1885 1.1091 1.0578 0.9919 0.9477 0.9255 0.9141 0.9024 0.8939 0.9940 0.9947 0.9024 0.8939 0.8939 0.9000 0.8975 0.8939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 112 13 4 15 6 17 19 20 1 22 23 24 5 6 27 28 E R 2 3 4 5 6 6 7 8 9 | X/L 0-0 0-032 0-0345 0-0345 0-0350 0-0345 0-0767 0-0990 0-1400 0-1700 0-2200 0-2595 0-3397 0-3800 0-4200 0-5000 0-5000 0-5000 0-5000 0-702 0-703 | CP 0-237 -0.2810 -0.820 -0.820 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8186 -0.7531 -0.7244 -0.6981 -0.6751 -0.6725 -0.6851 -0.6851 -0.6863 -0.590 -0.278 -0.690 -0.4829 -0.4278 -0.690 -0.4829 -0.4278 -0.690 -0.591 -0.690 | ML 0.2211 0.6879 0.8312 0.8599 0.9149 0.9727 1.0142 0.9864 0.9187 0.8515 0.8231 0.8145 0.8231 0.8145 0.8079 0.8069 0.7246 0.7320 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 | X/L UPPER SUI 0.0 0.0130 0.0130 0.0140 0.1640 0.3300 0.4100 0.5770 0.7380 0.6100 0.000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000 0.00000 0.000000 0.000000 0.000000 0.00000000 | CP PRACE 0.1857 0.3692 0.1045 0.1379 0.2777 0.1389 0.1389 0.1389 0.1386 0.1386 0.1386 0.1386 0.1386 0.1386 0.5747 0.4825 0.4359 0.7346 0.3783 0.3484 0.3783 0.3484 0.7929 0.0744 0.7315 0.1931 0.7929 0.07315 0.1932 0.7929 0.0745 0.1934 0.7929 0.0746 0.7929 0.0746 0.7929 0.0746 0.1934 0.7929 0.0746 0.1934 0.7929 0.0746 0.1934 0.7929 0.0746 0.1934 0.7929 0.0746 0.1934 0.7929 0.0746 0.1934 0.1948 | 0.5387 0.4745 0.4658 0.5071 0.5071 0.6559 0.6438 0.7083 0.6897 0.617 0.6357 0.6387 0.3957 0.4178 0.3702 0.3957 0.4498 0.4498 0.4580 0.5218 0.5218 0.5218 0.5218 0.5430 0.6633 0.7652 0.7461 0.6902 0.6899 | NR UPPER 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 22 23 44 22 25 26 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | X/L 0.01 0.0032 0.0032 0.0032 0.0032 0.0155 0.0250 0.0345 0.0797 0.0940 0.1740 0.2700 0.2790 0.2995 0.2397 0.2800 0.4200 0.5945 0.2995 0.0032 0.0070 0.0182 0.0070 0.0182 0.0070 0.0182 0.0070 0.0182 0.0070 0.0182 | CP 0.9857 -0.1162 -0.5794 -0.6884 -1.0987 -1.3207 -1.4663 -1.5020 -1.3019 -1.1541 -0.9905 -0.8624 -0.7345 -0.7905 -0.7756 -0.77276 -0.7102 -0.7566 -0.7736 -0.7102 -0.4861 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 -0.4256 -0.3961 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0939 0.9417 0.9255 0.9141 0.9034 0.8939 0.8477 0.9255 0.8939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 12 3 14 5 6 17 11 12 3 14 5 6 7 10 11 12 22 3 24 5 26 27 28 ER 2 3 4 5 6 7 8 9 10 | X/L 0-0 0-032 0-037 0-0155 0-0250 0-0245 0-0745 0-0799 0-1400 0-1700 0-2200 0-2595 0-3890 0-4200 0-5395 0-6200 0-7525 0-7815 0-8250 0-8250 0-9997 0-1400 0-17525 0-8250 0-17525 0-8250 0-17525 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-17525 0-1815 0-8250 0-1815 0-8250 0-1815 0-8250 0-1815 0-8250 0-1815 0-8250 0-1815 0-8250 0-1815 0-8250 0-1815 0-8250 0-8250 0-8250 0-98 | CP 0.0237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0394 -0.8745 -0.8186 -0.7531 -0.7244 -0.6751 -0.6645 -0.6787 -0.6721 -0.0618 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.9187 0.87597 0.8515 0.80231 0.8145 0.8079 0.8169 0.8069 0.8069 0.7619 0.7496 0.7329 0.7246 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1040 0-12480 0-5770 0-3300 0-6100 0-5770 0-7380 0-0160 0-0440 0-1060 0-2530 0-4010 0-60 | CP PRACE 0.1857 0.3692 0.1045 0.1379 0.2777 0.1389 0.1389 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.5747 0.4825 0.4359 0.7346 0.3783 0.3484 0.3783 0.3484 0.7929 0.0744 0.3783 0.3484 0.7929 0.0744 0.3783 | 0.5387 0.4745 0.4658 0.5071 0.5058 0.6038 0.6037 0.6417 0.6357 0.6357 0.4178 0.3702 0.3702 0.3702 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 0.5238 0.6283 | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 6 17 18 19 20 21 22 22 22 22 22 22 22 22 22 22 26 27 28 8 9 10 | X/L 0.0' 0.0032 0.0087 0.0155 0.0250 0.0345 0.0345 0.0797 0.1400 0.1200 0.2200 0.2200 0.2200 0.2200 0.2200 0.2505 0.397 0.200 0.5795 0.297 0.3800 0.5795 0.297 0.3800 0.6000 0.50 | CP 0.9857 -0.1162 -0.5794 -0.6883 -1.0987 -1.3007 -1.4663 -1.5020 -1.3019 -1.15020 -0.9905 -0.8002 -0.7365 -0.7345 -0.7096 -0.7345 -0.7102 -0.7276 -0.7102 -0.7276 -0.7102 -0.4002 -0. | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1091 1.0528 0.9477 0.9255 0.9141 0.9255 0.9141 0.9024 0.8939 0.9966 0.9000 0.8973 0.8632 0.8632 0.86427 0.8167 0.7863 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 112 13 4 15 6 17 19 20 1 22 23 24 5 6 27 28 E R 2 3 4 5 6 6 7 8 9 | X/L 0-0 0-032 0-037 0-0155 0-0250 0-0250 0-0250 0-0250 0-0250 0-1700 0-1700 0-1200 0-2200 0-2550 0-3450 0-4600 0-5000 0-5000 0-7525 0-8000 0-7525 0-7815 0-6200 0-7520 | CP 0-237 -0.2810 -0.820 -0.820 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8186 -0.7531 -0.7244 -0.6981 -0.6751 -0.6725 -0.6851 -0.6851 -0.6863 -0.590 -0.278 -0.690 -0.4829 -0.4278 -0.690 -0.4829 -0.4278 -0.690 -0.591 -0.690 | ML 0.2211 0.6879 0.8312 0.8599 0.9149 0.9727 1.0142 0.9864 0.9187 0.8515 0.8231 0.8145 0.8231 0.8145 0.8079 0.8069 0.7246 0.7320 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 0.7246 | X/L UPPER SUI 0-0 0-0130 0-0140 0-1640 0-2480 0-33300 0-6100 0-5770 0-7380 0-9000 1-0000 0-0000 0-0000 0-0000 0-0000 0-0000 0-0440 0-0000 0-0440 0-016 | CP PEACE 0.1857 0.3692 0.1379 0.2777 0.1045 0.1045 0.11389 -0.3465 -0.1256 0.1135 -0.1081 -0.0890 RFACE 0.1857 0.523 0.6356 0.5747 0.523 0.4855 0.4359 0.3640 0.3783 0.3783 0.3783 0.3783 0.3783 0.3783 0.3783 0.3783 | 0.5387 0.4745 0.4658 0.5071 0.5059 0.6438 0.6897 0.6342 0.6283 0.5387 0.3957 0.4178 0.3702 0.3957 0.4178 0.3702 0.4478 0.3702 0.4478 0.3702 0.4523 0.6283 ML 0.5102 0.6283 0.6283 | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 6 17 18 19 22 12 22 32 24 25 26 27 28 ELOWER 2 3 4 5 6 7 8 9 10 11 12 | X/L 0.01 0.0032 0.0032 0.0032 0.0032 0.0155 0.0250 0.0345 0.0797 0.0940 0.1740 0.2700 0.2790 0.2995 0.2397 0.2800 0.4200 0.5945 0.2995 0.0032 0.0070 0.0182 0.0070 0.0182 0.0070 0.0182 0.0070 0.0182 0.0070 0.0182 | CP 0.9857 -0.1162 -0.5794 -0.68843 -1.0987 -1.3019 -1.1541 -0.9905 -0.8624 -0.7905 -0.8624 -0.7102 -0.7276 -0.7102 -0.7266 -0.7276 -0.7102 -0.7505 -0.8627 -0.4861 -0.4961 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0939 0.9417 0.9255 0.9141 0.9034 0.8939 0.8477 0.9255 0.8939 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 22 24 5 26 7 28 LOWER 2 3 4 5 6 7 8 9 10 11 2 13 | X/L 0-0 0-032 0-032 0-025 0-025 0-0345 0-0767 0-0155 0-0767 0-1400 0-1700 0-2700 0-2595 0-3387 0-4200 0-5000 0-5005 0-7815 0-6000 0-7000 0-7725 0-7815 0-815 | CP 0-237 -0.2810 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.255 -0.8186 -0.7531 -0.7244 -0.6751 -0.6675 -0.6851 -0.66721 -0.67 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0179 1.0179 0.8595 0.8595 0.8195 0.8195 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.9186 | X/L UPPER SUI 0-0 0-0130 0-0440 0-1040 0-12480 0-5770 0-3300 0-6100 0-5770 0-7380 0-0160 0-0440 0-1060 0-2530 0-4010 0-60 | CP PRACE 0.1857 0.3692 0.1045 0.1379 0.2777 0.1389 0.1389 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.1326 0.5747 0.4825 0.4359 0.7346 0.3783 0.3484 0.3783 0.3484 0.7929 0.0744 0.3783 0.3484 0.7929 0.0744 0.3783 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6897 0.6342 0.6283 0.5387 0.3957 0.4178 0.3702 0.3957 0.4223 0.4178 0.3702 0.4757 0.4223 0.4223 0.4223 0.45801 0.5102 0.5218 0.5221 0.6362 0.6363 0 | NR UPPER 3 4 5 6 7 8 9 10 11 2 13 14 15 6 17 12 12 12 22 22 22 22 22 22 22 24 2 22 28 10 0 12 2 2 2 3 2 4 5 5 6 7 8 9 10 11 12 13 13 10 11 12 13 13 14 15 16 17 18 19 10 11 12 13 13 10 11 12 13 13 14 15 16 17 18 10 11 12 13 13 14 15 16 17 18 10 11 12 13 13 10 11 12 13 13 14 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18 | X/L 0.0' 0.0032 0.0037 0.0087 0.0159 0.0250 0.0345 0.0797 0.1400 0.1700 0.2700 0.2750 0.3800 0.4200 0.4200 0.5595 0.3997 0.6600 0.7000 0.7525 0.8875 | CP 0.9857 -0.1162 -0.5794 -0.68843 -1.0987 -1.3019 -1.1591 -0.905 -0.8624 -0.7066 -0.7102 -0.7276 -0.7102 -0.7286 -0.7102 -0.7565 -0.7276 -0.7102 -0.7565 -0.7276 -0.7102 -0.7565 -0.7276 -0.7102 -0.7565 -0.7276 -0.7102 -0.7026 -0.7102 -0.7026 -0.7102 -0.7026 -0.7102 -0.7026 -0.7102 -0.7026 -0.7076 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 0.9417 0.9255 0.9141 0.9024 0.8939 0.8955 0.8939 0.8955 0.8939 0.8955 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 6 17 18 19 20 2 2 2 2 2 2 5 6 7 8 9 10 11 2 3 14 15 11 12 3 14 15 11 14 15 16 17 18 19 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L 0-0 0-032 0-2595 0-2450 0-1400 0-1700 0-1700 0-1700 0-2595 0-3397 0-3800 0-4200 0-5000 0-5000 0-7000 0-7525 0-7615 0-815 0 | CP 0.º237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.0344 -0.8797 -0.9455 -0.6186 -0.7531 -0.6721 -0.6751 -0.6721 -0.6643 -0.5003 -0.5240 -0.4278 -0.4009 0.237 1.0591 0.8870 0.6237 1.0591 0.9870 0.5055 | ML 0.2211 0.6879 0.8312 0.8599 0.9149 0.9727 1.0179 0.8515 0.8145 0.8515 0.8145 0.8079 0.8079 0.8073 0.8079 0.8073 0.7246 0.7216 0.7246 0.7216 0.7246 0.7216 0.7246 0.7216 0.7246 0.7276 0.7276 0.7276 | X/L UPPER SUI 0-0 0-0130 0-0140 0-1440 0-15770 0-5770 0-5770 0-5770 0-6016 | CP PFACE 0.1857 0.3692 0.1045 0.1045 0.1045 0.1045 0.1045 0.1045 0.1046 | 0.5387 0.4745 0.4658 0.5071 0.5059 0.6438 0.7083 0.6897 0.6347 0.6357 0.6347 0.3957 0.4178 0.3702 0.3957 0.4478 0.3702 0.4478 0.4757 0.4223 0.4223 0.4223 0.6283 0.5380 0.6283 0.5490 0.5430 0.6323 0.6633 0.7652 0.7461 0.6902 0.6899 0.6897 | NR UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 6 17 18 19 20 21 22 3 24 25 26 27 28 10 0WER 2 3 4 5 6 7 8 9 10 11 2 13 14 | X/L 0.01 0.0032 0.0032 0.0032 0.0155 0.0250 0.0345 0.0797 0.0990 0.1740 0.2790 0.2790 0.2995 0.3297 0.3890 0.4200 0.5995 0.3297 0.8800 0.6500 0.7505 0.8775 0.8500 0.7605 0.8775 | CP 0.9857 -0.1162 -0.5794 -0.6884 -1.0987 -1.3207 -1.4663 -1.5070 -1.3070 -1.4663 -1.5070 -1.3070 -0.8624 -0.8066 -0.7345 -0.7076 -0.7102 -0.7256 -0.7276 -0.7102 -0.7256 -0.7351 -0.4256 -0.3391 0.9551 0.8627 0.2565 0.2907 0.1416 0.2565 0.0704 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 1.1091 1.0578 0.9939 0.9477 0.9255 0.8923 0.8939 0.8975 0.8923 0.8939 0.8975 0.8963 0.8963 0.8963 0.8963 0.8963 0.8963 0.8963 0.8963 0.8963 0.8965 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 4 5 6 7 8 9 10 11 2 13 22 24 5 26 7 28 LOWER 2 3 4 5 6 7 8 9 10 11 2 13 | X/L 0-0 0-032 0-032 0-025 0-025 0-0345 0-0767 0-0155 0-0767 0-1400 0-1700 0-2700 0-2595 0-3387 0-4200 0-5000 0-5005 0-7815 0-6000 0-7000 0-7725 0-7815 0-815 | CP 0-237 -0.2810 -0.7508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -1.03142 -0.8797 -0.9455 -0.8186 -0.7531 -0.7531 -0.76751 -0.6785 -0.6845 -0.6787 -0.6721 -0.6643 -0.5030 -0.5240 -0.4278 -0.4009 -0.4009 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0179 1.0179 1.0179 0.8595 0.8595 0.8195 0.8195 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.8197 0.8196 0.9186 | X/L UPPER SUI 0-01 30 0-0130 0-0130 0-1440 | CP FFACE 0.1857 0.3697 0.3777 0.3777 0.1081 0.1045 0.1135 0.1081 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6897 0.6342 0.6283 0.5387 0.3702 0.3957 0.4178 0.3702 0.4178 0.3702 0.4178 0.3702 0.4223 0.44757 0.4223 0.4502 0.5102 0.5221 0.5221 0.5221 0.5402 0 | NR UPPER 23 45 6 7 8 9 10 11 2 13 14 15 6 7 18 9 10 11 2 2 2 2 2 2 2 2 2 2 2 2 2 8 R 2 2 2 2 8 R 2 2 3 2 4 5 6 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 11 2 1 3 3 1 4 5 6 7 8 9 10 1 1 2 3 3 6 7 8 9 10 1 1 2 3 3 6 7 8 9 10 1 1 2 3 6 7 8 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | X/L 0.01 0.0032 0.0032 0.0032 0.0155 0.0155 0.0250 0.0345 0.0174 0.0990 0.1740 0.1740 0.2200 0.2395 0.3397 0.8800 0.4200 0.4200 0.4295 0.3297 0.8800 0.6000 0.5995 0.2995 0.0032 0.0070 0.0187 0.1890 0.0032 0.0070 0.0187 0.1890 0.0187 0.1890 0.0187 0.1890 0.2992 0.3492 0.2992 0.3492 | CP 0.9857 -0.1162 -0.5794 -0.68843 -1.0987 -1.3019 -1.1591 -0.905 -0.8624 -0.7066 -0.7102 -0.7276 -0.7102 -0.7286 -0.7102 -0.7565 -0.7276 -0.7102 -0.7565 -0.7276 -0.7102 -0.7565 -0.7276 -0.7102 -0.7565 -0.7276 -0.7102 -0.7026 -0.7102 -0.7026 -0.7102 -0.7026 -0.7102 -0.7026 -0.7102 -0.7026 -0.7076 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1885 0.9417 0.9255 0.9141 0.9024 0.8939 0.8955 0.8939 0.8955 0.8939 0.8955 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 0.8959 0.8958 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 1 13 4 15 6 17 1 19 20 1 2 2 3 2 4 5 6 7 8 9 10 11 1 13 4 15 6 17 8 19 10 11 1 13 4 15 6 17 1 18 1 18 1 18 1 18 1 18 1 18 1 18 | X/L 0-0 0-032 0-037 0-0155 0-025 0-0245 0-0745 0-0745 0-0746 0-1700 0-17 | CP 0-0237 0-02810 0-10508 0-8422 1-0250 1-2113 1-13527 1-3412 1-2553 1-0394 0-8745 0-8186 0-7531 0-07244 0-6751 0-6845 0-6845 0-6845 0-6845 0-6845 0-6845 0-6851 0-6845 0-6851 0-6851 0-6852 0-6852 0-6853 0-5930 0-5240 0-4829 0-4278 0-6951 0-96554 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.88797 0.87597 0.8515 0.8079 0.8079 0.8106 0.8097 0.8106 0.7619 0.7246 0.7329 0.7492 0.7492 0.7492 0.7593 0.7515 | X/L UPPER SUI 0-0 | CP PEACE 0.1857 0.3692 0.1379 0.2777 0.1045 0.1045 0.11389 -0.3465 -0.2873 -0.1326 -0.1326 0.1887 0.5203 0.6356 0.5747 0.5203 0.4825 0.4825 0.4384 0.7929 0.7315 -0.1326 -0.1326 -0.1778 0.1326 -0.1778 0.1326 -0.1778 | 0.5387 0.4745 0.4658 0.5071 0.5659 0.6438 0.6897 0.6342 0.6283 0.5387 0.3702 0.3957 0.4178 0.3702 0.4178 0.3702 0.4178 0.3702 0.4223 0.44757 0.4223 0.4502 0.5102 0.5221 0.5221 0.5221 0.5402 0 | NR UPPER UPPER 3 4 5 6 7 8 9 10 11 12 13 14 15 6 17 18 19 20 21 22 22 24 22 26 ER 2 28 ER 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 6 11 12 13 14 15 6 11 12 13 14 15 6 11 17 17 18 19 10 11 12 13 14 15 6 11 17 17 18 19 10 11 11 11 11 11 11 11 11 11 11 11 11 | X/L 0.0' 0.0032 0.0087 0.0159 0.0087 0.0159 0.0250 0.0345 0.0797 0.1400 0.1700 0.12700 0.2290 0.2290 0.4200 0.4600 0.5000 0.5000 0.5000 0.7525 0.7815 0.887 0.887 0.1800 0.2002 0.40032 | CP 0.987 -0.1162 -0.5774 -0.6890 -0.8843 -1.0987 -1.3017 -1.4663 -1.5020 -0.905 -0.8624 -0.905 -0.8624 -0.7096 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0. | ML 0.2007 0.6903 0.8494 0.8886 0.9549 1.0320 1.1159 1.1732 1.1091 1.0578 0.9477 0.9255 0.9141 0.9255 0.9141 0.8938 0.8939 0.8977 0.8167 0.7963 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.900000 0.900000 0.900000000 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 6 17 18 9 20 1 22 22 3 24 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 12 3 14 5 6 7 8 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | X/L 0-0 0-032 0-037 0-035 0-025 0-0345 0-0767 0-0960 0-1400 0-1700 0-1700 0-2595 0-3387 0-4200 0-5395 0-4200 0-5395 0-6000 0-5395 0-6000 0-7000 0-7728 0-3805 0-6000 0-7000 0-7525 0-00172 0-0 | CP 0-237 -0.2810 -0.8508 -0.8422 -1.0250 -1.2113 -1.3527 -1.3412 -1.2553 -0.8186 -0.7531 -0.7244 -0.6981 -0.6725 -0.6851 -0.6845 -0.6725 -0.6845 -0.6726 -0.6727 -0.67 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.9187 0.8597 0.8595 0.83145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.8231 0.8145 0.873 0.8047 0.8069 0.7248 | X/L UPPER SUI 0-0 0-0130 0-0140 0-1440 0-1440 0-1440 0-1440 0-1440 0-1440 0-1440 0-1440 0-16 | CP PEACE 0.1857 0.3692 0.1045 0.1045 0.1045 0.1045 0.1045 0.1389 0.2777 0.1389 0.1135 0.1135 0.1135 0.1135 0.1135 0.1135 0.1135 0.1234 | 0.5387 0.4755 0.4658 0.5071 0.5058 0.6038 0.7083 0.6937 0.6317 0.6317 0.6317 0.6317 0.4328 0.3702 0.3702 0.4428 0.4757 0.5218 0.5218 0.5218 0.5218 0.5218 0.5218 0.5430 0.7652 0.6899 0.6899 0.4628 | NR UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 6 17 12 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | X/L 0.01 0.0032 0.0032 0.0032 0.0155 0.0155 0.0250 0.0345 0.0156 0.0797 0.0990 0.1700 0.2295 0.3997 0.3800 0.5295 0.3997 0.4000 0.5295 0.3997 0.4000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.7000 0.5000 0.7000 | CP 0.9857 -0.1162 -0.5794 -0.68843 -1.0987 -1.3019 -1.1541 -0.9905 -0.8624 -0.7905 -0.8624 -0.7102 -0.7276 -0.7102 -0.7276 -0.7102 -0.7569 -0.7276 -0.7102 -0.7569 -0.7276 -0.7102 -0.7569 -0.7276 -0.7102 -0.7569 -0.7102 -0.7569 -0.7776 -0.7102 -0.7569 -0.7776 -0.7102 -0.7569 -0.7776 -0.7102 -0.7569 -0.7776 -0.7102 -0.7569 -0.7776 -0.4861 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.4961 -0.5415 -0.2962 -0.3603 | ML 0.2007 0.6903 0.8494 0.8866 0.9549 1.0320 1.1159 1.1732 1.1891 1.0528 0.9417 0.9255 0.9141 0.9024 0.8955 0.8963 0.8939 0.8939 0.8939 0.8939 0.8939 0.8939 0.8939 0.8939 0.8939 0.8955 0.8923 0.8939 0.8955 0.8923 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.8966 0.9000 0.8955 0.9000 0.8955 0.9000 0.8955 0.9000 0.8955 0.9000 0.8955 0.9000 0.8955 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.900000 0.90000 0.900000 0.900000000 |
| NR UPPER 1 2 3 4 5 6 7 8 9 10 11 1 13 4 15 6 17 1 19 20 1 2 2 3 2 4 5 6 7 8 9 10 11 1 13 4 15 6 17 8 19 10 11 1 13 4 15 6 17 1 18 1 18 1 18 1 18 1 18 1 18 1 18 | X/L 0-0 0-032 0-037 0-0155 0-025 0-0245 0-0745 0-0745 0-0746 0-1700 0-17 | CP 0-0237 0-02810 0-10508 0-8422 1-0250 1-2113 1-13527 1-3412 1-2553 1-0394 0-8745 0-8186 0-7531 0-07244 0-6751 0-6845 0-6845 0-6845 0-6845 0-6845 0-6845 0-6851 0-6845 0-6851 0-6851 0-6852 0-6852 0-6853 0-5930 0-5240 0-4829 0-4278 0-6951 0-96554 | ML 0.2211 0.6879 0.8312 0.8590 0.9149 0.9727 1.0142 0.88797 0.87597 0.8515 0.8079 0.8079 0.8106 0.8097 0.8106 0.7619 0.7246 0.7329 0.7492 0.7492 0.7492 0.7593 0.7515 | X/L UPPER SUI 0.0 0.0 130 0.0 130 0.0 140 0.2 140 0.5 0.5 | CP PEACE 0.1857 0.3692 0.1045 0.2777 0.2777 0.1389 0.1045 0.1389 0.1135 0.0135 0.1135 0.0135 0.1135 0.0135 0.1135 0.0136 0.1135 0.0136 0.1135 0.0136 0.1236 | 0.5387 0.4745 0.4658 0.5071 0.5559 0.6438 0.7083 0.6897 0.6417 0.6357 0.6283 0.5387 0.4178 0.3702 0.3957 0.4478 0.3702 0.45801 0.55102 0.5218 0.55801 0.55801 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.5450 0.6623 0.7461 0.6623 0.6623 0.7461 0.6623 0.6623 0.7461 0.6623 0.6623 0.7461 0.6623 0.6623 0.7461 0.6623 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.6623 0.7461 0.746 | NR UPPER UPPER 3 4 5 6 7 8 9 10 11 2 1 13 4 15 6 7 8 9 10 11 2 2 1 2 2 2 2 2 2 5 2 6 7 8 9 10 11 2 13 14 15 16 7 8 9 10 11 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | X/L 0.0' 0.0032 0.0087 0.0159 0.0087 0.0159 0.0250 0.0345 0.0797 0.1400 0.1700 0.12700 0.2290 0.2290 0.4200 0.4600 0.5000 0.5000 0.5000 0.7525 0.7815 0.887 0.887 0.1800 0.2002 0.40032 | CP 0.987 -0.1162 -0.5774 -0.6890 -0.8843 -1.0987 -1.3017 -1.4663 -1.5020 -0.905 -0.8624 -0.905 -0.8624 -0.7096 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0.7325 -0.7327 -0. | ML 0.2007 0.6903 0.8494 0.8886 0.9549 1.0320 1.1159 1.1732 1.1091 1.0578 0.9477 0.9255 0.9141 0.9255 0.9141 0.8938 0.8939 0.8977 0.8167 0.7963 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.9000 0.8976 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.900000 0.900000 0.900000000 |

¹⁾ See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.9 ONERA S3MA tests. Pressure distributions 2 a. Airfoil surface pressures

| M _o go | 0. | 703 | 0. | 17 703 | 0. | 18 702 | 0. | 21 760 | 962 | 61 | | 7 | | | _ | | | - | 11 | _ | | | |
|--|--|--|--|---|--|--|--|---|---|--|---|---------------------------|--|---|--|---|--|---|---|---|---|---|---|
| | CP 4, | 08 | | 07 | | 03 | | ML ML | 4.0 CP | 7 ML | | | | lap | | | | | Ш | | | | |
| pper s | | ML | CP | ML | CP | ML | CP | NIL. | Cr | ML | | 1 | .8117 | 121 | 666 | 27.4 | 16 | 4581 | | 181 | 10 | 27 | 5630 |
| 8 27 50 | 3710 | .8435 | 4112 | .8609 | 6049 | . 98 41 | 6636 | 1.0502 | 6808 | 1.0357 | 0.7 | ML | 6.00 | 0 00 0 | . 99 | C1 00 | 00 | 96 | | 36. | . 4 | 10.10 | . 56 |
| 8150 | -, 4314 | .8667 | 5082 | .8980 | 6541 | . 98 43 | ~. 7252 | 1.0794 | 6905 | 1.0607 | 4 | | | | | | | - 1 | | | | | |
| 5250 | 4938 5481 | .8908 | 5925 | .9308 | 7045 7479 | . 9746 | 7900 8583 | 1.1087 | 6941 7084 | 1.0616 | 9621 | _ | 28 | 96 | 59 | 98 | 12 | 73 | | 88 | 10 | 4 - | 9 1 |
| 5000 | 6485 | .9509 | 7482 | ,9930 | 8068 | 1.3329 | -1.3329 | 1. 4082 | 7250 | 1.0781 | 6 | CP | 0628 | 2 55 5 | 55 | 0.2 | 67 | 6 8 | 11 | 98 | 61 | 55 | 4516 |
| 2000 | 7845 | 1.0052 | 7661 | .9956 | 8630 | 1.0384 | -1.2658 | 1.3631 | 7461 | 1.0867 | | | 11 | i i | i i | - 1 | i | | 11 | | | | |
| 950 | 8903 | 1.0488 | 7378 | .9884 | 9002 | 1.0541 | -1.2438 | 1.3478 | 8454 | 1.1838 | | 1 | | | | | | | 1 | | - | | |
| 950 | -1.0714 -1.6056 | 1.1260 | 7068 | .9770 | 9513 9859 | 1.0748 | -1.2193 -1.1941 | 1.3321 | -1.0260 -1.3208 | 1.2252 | 10 | ML | 6773 | 282 | 1.0188 | 1.1826 | 150 | 558 | 1 | 2421 | 4702 | 4955 | 5361 |
| 000 | -1.5996 | 1.3806 | 6209 | .9419 | -1.1074 | 1.1416 | -1.1700 | 1.3040 | -1.3304 | 1.3981 | 1 9 | - | 91-1 | - 99 0 | 0 | . 8 | 00 | . 461 | | C1 - | 7 | 4 10 | 10 11 |
| 000 | -1.6308 | 1.3993 | 68 26 | .9665 | -1.2237 | 1.1964 | -1.1853 | 1.3129 | -1.3537 | 1.4107 | 1/2 | 15 | | | | | | - 1 | | | | | |
| 000 | -1.6952 | 1.4007 | -1.2140 | 1.1992 | -1.3124 | 1.2362 | -1.1805 | 1.3108 | -1.3433 | 1.4062 | 9621 | . 1 | 1723 | 65 | 13 | 9453 | 57 | 88 | 11 | 81 | 124 | 19 | 81 |
| 975 950 | -1.6559 | 1.4122 | -1.3654 | 1.2639 | -1. 4663 | 1.3107 | -1.1874 | 1.3162 | -1.3553 | 1.4132 | 0,1 | 0 | 1723 | 3 2 5 | 59 | 4 6 5 | 20 | 4588 | | 00 | 6424 | 59 | 5081 |
| 950 | -1.6315 -1.6269 | 1.3967 | -1.3490 | 1.2551 | -1.6510 -1.7136 | 1.4119 | -1.1426 -1.1353 | 1. 28 58 | -1.3165 -1.3063 | 1.3898 | | | | i i | 1 1 | | • | • | | | | | |
| 2000 | -1.5957 | 1.3789 | -1.3350 | 1.2480 | -1.7212 | 1.4512 | -1.1102 | 1.2697 | -1.2753 | 1.3688 | | | | | | | | | 11 | | | | |
| 000 | -1.6931 | 1.4385 | -1.4297 | | -1.8354 | 1.5222 | -1.1573 | 1.2968 | -1.3289 | 1.3978 | 00 | - | . 7427 | 248 | 146 | 051 | 380 | 536 | | 2459 | 483 | 7 20 | 5202 |
| 000 | -1.7131 | 1.4469 | -1.4621 | | -1.8563 | 1.5356 | -1.1958 | 1.3165 | -1.3486 | 1.4092 | . 03 | 2 | t- t- t | . 00 0 | 0.00 | 0.8 | 1- 0 | 8. 4 | | 3 4 | 4 | 7 7 | 10 10 |
| 900 | ~1.6579 | 1.4155 | -1.4008 -1.2895 | | -1.8006 -1.7198 | 1.5017 | -1.1264 -1.0077 | 1.2776 | -1. 2885 -1. 1920 | 1.3726 | 9/8196 | 1 | | | | | | - 1 | 11 | | | | |
| 000 | ~1.4624 | 1.3104 | -1.1849 | | -1.6242 | 1.3973 | 8757 | 1.1485 | -1.0622 | 1. 2458 | 9 | | 1042 | 92 | 40 9 | 94 | 54 | 31 | 1 1 | 36 | 07 | 95 | 4520 |
| 3 450 | ~1.8070 | 1.1862 | 9285 | 1.0664 | -1.4391 | 1.2982 | ~.6397 | 1.0356 | 8467 | 1.1386 | 3 | CP | 0.00 | 31 | 0.0 | 78 | 22 | 66 | | 96 | 19 | 50 | 45 |
| 2500 | -1.0658 | 1.1228 | 7383 | | -1.3848 | 1. 2700 | 4649 | . 9580 | 8676 | 1.0506 | | 1 | ii | | Ü | | 1 | | 11 | | | | |
| 1550 | 9958 9851 | 1.0981 | 5728 4760 | | -1.3924 -1.3035 | 1.2744 | 2957 1685 | .8844 | 5491 4718 | .9987 | | | | | | | | - 01 | | - | | | |
| 0325 | 4648 | .8804 | 0273 | .7135 | 7270 | . 98 21 | . 2404 | .6565 | 0368 | .7785 | 0.7 | ME | 7.23 | 218 | 418 | 20: | 71. | 30 | | 2396 | 47 | 68: | 5036 |
| wer s | urface | | | | | | | | | | 20 | 1 | .6248 | 8.0 | | 6. 7. | - | 0. 4 | 11 | 3 4 | 4. | 4 4 | in in |
| 0000 | . 7906 | . 3563 | .9924 | . 2232 | . 6332 | . 4375 | 1.0868 | . 1621 | . 9853 | . 2610 | 1 | 1 | | - | - | | | | | | | | |
| 325 | 1.1218 | .0520 | 1.1258 | .0000 | 1.1193 | .0601 | 1.1528 | .0000 | 1.1531 | . 1017 | 9617 | | 10 to 10 | 000 | 2 00 | r + | 0 | 0 + | 1 | 100 | 9 | 0 4 | 10 F |
| 700 | 1.1296 | . 1640 | . 9008 | . 1397 | 1.1295 | .0000 | .8444 | . 3585 | .9935 | . 1017 | 11 | 0 | 1995 | 908 | 62 | 65 | 79 | 50 | 1 1 | 9727 | 114 | 38 | 4905 |
| 826 | .8138 | . 3436 | .6115 | . 4484 | . 9070 | . 2863 | . 5552 | .5135 | .7188 | . 4308 | | | | 0.1 | | : ; | : | | 11 | | | | |
| 875 | . 5573 | . 4731 | . 3666 | . 5570 | . 6541 | . 4275 | . 3297 | .6174 | . 4724 | . 5530 | 1 | + | | | - | - | - | - | 1 + | _ | | | |
| 9875 | . 3964 | . 5438 | . 1520 | 6.429 | . 4764 | . 5092 | . 2231 | .6642 | . 3254 | .6201 | | 1 | 99 | 23 | 30 | 23 | 08 | 21 10 | 1 19 | 23 | 4 | 66 | 010 |
| 000 | . 2950 | . 6033 | .1520 | .6439 | . 3689 | . 5552 | .0923 | .7071 | . 1799 | .6638 | 80 | MI | .6695 | 80 | 0.5 | 92 | 758 | 417 | 1 | 2383 | 438 | 47 | 5379 |
| 925 | . 1747 | . 6338 | .0407 | .6873 | . 2187 | .6170 | .0087 | .7559 | .0977 | .7189 | 4.08 | 1 | | | - | | | | | | | | |
| 925 | . 1076 | . 6604 | 0004 | .7034 | . 1393 | . 6482 | .0236 | .7697 | .0314 | .7474 | 12 | 1 | | | | | | 1 | 11 | | | | |
| 925 | .0983 | . 66 43 | .0086 | .6997 | . 1128 | .6580 | . 0098 | .7636 | .0203 | .7513 | 9617/ | ۵. | 53 | 4 6 | 46 | 46 | 73 | 43 | 1 5 | 33 | 98 | 64 | 92 |
| 000 | . 1595 | . 6395 | .0968 | .6657 | . 1581 | .6405 | .0863 | .7226 | .0937 | .7209 | | 0 9 | 2092 | 255 | 8 2 | 15 | 4 | 67 | a c | 64 | 62 | 55 | 5092 |
| 500 000 | . 2508 | . 6031 | . 2583 | .6218 | . 2357 | . 5931 | . 2575 | .6724 | . 2013 | .6569 | 1 | 4 | | | | ii | í | : 1 | Fa | | | | |
| 005 | .3120 | . 5783 | . 2887 | . 5892 | . 2817 | . 5909 | . 2879 | .6374 | . 2735 | .6425 | | 1 | 1.06220 | 00 | 0 | 0 0 | 0 | 00 | ns. | 0 0 | 0 | 0 0 | . 96400 |
| 250 | . 2999 | . 5836 | . 2763 | . 5941 | . 2646 | . 5982 | , 2800 | . 6401 | . 2586 | . 6486 | Run/a0 | 1 | 322 | 325 | 35 | 160 | 008 | 09 | er | 85 | 105 | 45 | 6 4 |
| 700 | . 2834 | . 5900 | . 2576 | .6015 | . 2454 | .6057 | . 2593 | . 6491 | . 2451 | .6551 | un. | 0 | 10.00 | 6 | . 6 | 8 8 | 80 0 | 0 00 | NO. | 8 8 | 00 0 | 9 | 96 |
| 0000 | . 2788 | . 5919 | . 2517 | .6039 | . 2410 | . 6075 | . 2589 | .6493 | . 2412 | .6568 | m . | × | | | | | | | - | | | | |
| | | 10010 | 10.00 | 1.000 | | | 1 | 1 .000 | | 1.01.00 | | | | | | | | | | | | | |
| n | 960 | 16 | 961 | 0 | 1 90 | 512 | 7 90 | 52517 | 962 | 2517 | | | | | | | | | | | | | |
| œ | 0.4 | 199 | 0.6 | 00 | 0 | 649 | 0. | 702 | 0.7 | | | | | - | _ | - | _ | | 77 | _ | | | |
| | CP 2.0 | ML. | 2. 0 CP | 6 ML | CP | 06 ML | CP 2 | 11 ML | CP CP | ML. | L | | 1 | Flap | | | | | | | | | |
| pper s | - | T | 101 | T ML | - | T | 1 | 1 | + | T | 90 | 1 | 35 25 | 8747 | 53 | 986 | 13 | . 9755 | 2 | 2609 | 4904 | 5190 | 5711 |
| 2750 | 4448 | . 6095 | 4559 | .7418 | 4536 | .8045 | 8734 | 1.0407 | 8132 | 1.0168 | 4 | N | 20 20 | .83 | 96.0 | - 3 | 8. | 97 | 7 | 26 | 4. | 51 | 57 |
| 3150 | 5139 | . 6 26 1 | 5264 | . 7626 | 5242 | 0005 | | | | | | | | | | | | | 1 | | | | |
| 2750 | | | En | nnn. | | .8085 | 8867 | 1.0470 | 8247 | 1.0217 | (193 | | ** * | 0 10 | × 17 | | | 0 8 | | 1 | - 8 | 37 | 3302 |
| | 5719 | 6440 | 5745 | 7771 | 5613 | .8411 | 9099 | 1.0666 | 8247 8370 | 1.0217 1.0269 | 96251) | 1 | ∞ 4 | C 63 1 | C | 63 | 4 | | 3 1 | 2 | | | 330 |
| 0000 | 5902 | . 6440 | 6019 | .7860 | 5613 6120 | | | | 8247 | 1.0217 | 96251)/4. | CP | 3184 | 515 | 786 | 1463 | 3641 | 709 | 00.00 | 9431 | 5188 | 4537 | |
| 6000 | | | | | 5613 6120 7247 7441 | .8411 .8594 .8974 .9040 | 9099 9391 9804 -1.1512 | 1.0666 1.0678 1.0853 1.1504 | 8247 8370 8648 8864 8857 | 1.0217 1.0269 1.0878 1.0468 1.0467 | 96251) | CP | 318 | -, 515 | 685 | -1.1463 | 3641 | 709 | . 0023 | . 9431 | . 518 | . 45 | |
| 70000 66000 52000 57950 | 5902 6693 6685 6823 | .6440 .6621 .6622 .6648 | 6019 7002 7124 7220 | .7860 .8160 .8201 .8218 | 5613 6120 7247 7441 7527 | .8411 .8594 .8974 .9040 .9070 | 9099 9391 9804 -1.1512 -1.6278 | 1.0666 1.0678 1.0853 1.1504 1.3966 | 8247 8370 8648 8864 8857 9308 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 | - | CP | 11 | ((| 1 1 | 7 | 1 1 | | - | Ŀ | - | | - |
| 0000 6000 2000 7950 53950 | 5902 6693 6685 6823 6902 | .6440 .6621 .6622 .6648 .6673 | 5019 7002 7124 7220 7306 | .7860 .8160 .8201 .8218 .8258 | 5613 6120 7247 7441 7527 7645 | .8411 .8594 .8974 .9040 .9070 .9117 | 9099 9391 9804 -1.1512 -1.6278 -1.6178 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 | 8247 8370 8648 8864 8857 9308 9628 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 | | 0 | 11 | ((| 1 1 | 7 | 1 1 | | - | Ŀ | - | | - |
| 0000 6000 2000 7950 53950 60000 | 5902 6693 6685 6823 6902 6523 | .6440 .6621 .6622 .6648 | 6019 7002 7124 7220 | .7860 .8160 .8201 .8218 | 5613 6120 7247 7441 7527 | .8411 .8594 .8974 .9040 .9070 | 9099 9391 9804 -1.1512 -1.6278 | 1.0666 1.0678 1.0853 1.1504 1.3966 | 8247 8370 8648 8864 8857 9308 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 | | 0 | .75243948 | ((| 1 1 | 7 | 1 1 | | - | Ŀ | . 4681 . 518 | | - |
| 0000 6000 2000 7950 3950 0000 6000 | 5902 6693 6685 6823 6902 6523 6852 6925 | .6440 .6621 .6622 .6648 .6673 | 6019 7002 7124 7220 7306 7321 | .7860 .8160 .8201 .8218 .8258 .8252 .8232 .8249 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 | 9099 9391 9804 -1.1512 -1.6278 -1.6178 -1.5785 -1.5598 -1.5704 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 | 8247 8370 8648 8864 8857 9308 9628 9900 -1. 0573 -1. 1675 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.0899 1.1191 | | 0 | .7259 | .8243 | 1 1 | 7 | 1 1 | . 9486 708 | - | Ŀ | - | | - |
| 70000 66000 52000 57950 53950 50000 46000 42000 | 5902 6693 6685 6823 6902 6523 6852 6925 7065 | .6440 .6621 .6622 .6648 .6673 .6673 .6658 .6683 | 5019 7002 7124 7220 7306 7321 7228 7287 7448 | .7860 .8160 .8201 .8218 .8258 .8252 .8232 .8249 .8293 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 .9067 | 9099 9391 9804 -1.1512 -1.6278 -1.5785 -1.5785 -1.5598 -1.5704 -1.5680 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 | 8247 8370 8648 8864 8857 9628 9628 9900 -1.0573 -1.1675 -1.3443 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.0899 1.1191 1.1688 1.2398 | 6251/2.11 | ML C | .7259 | .8243 | .9601 | 1.1980 -1. | .8287 | . 9486 | . 4006 | . 2428 | . 4550 | , 4948 | . 5434 |
| 70000 66000 62000 57950 53950 50000 46000 42000 33300 33375 | 5902 6693 6685 6823 6902 6523 6852 6925 7065 7416 | .6440 .6621 .6622 .6648 .6673 .6673 .6658 .6683 .6710 | 5019 7002 7124 7220 7306 7321 7228 7287 7448 7847 | .7860 .8160 .8201 .8218 .8258 .8252 .8232 .8249 .8293 .8417 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 8066 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 .9067 .9114 | 9099 9391 9804 -1.1512 -1.6278 -1.5785 -1.5785 -1.5598 -1.5704 -1.5680 -1.5719 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 1.3622 1.3624 | 8247 8370 8648 8864 8857 9628 9628 9900 -1.0573 -1.1675 -1.3443 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.0899 1.1191 | 6251/2.11 | 0 | 0636 .7259 1316 .7524 | 3204 .8243 | 5340 .9057 6728 .9601 | 2355 1.1980 -1. | .8287 | . 9486 | . 4006 | . 2428 | - | , 4948 | . 5434 |
| 70000 66000 52000 57950 53950 50000 46000 12000 13000 13775 29950 | 5902 6693 6685 6823 6902 6523 6852 6925 7065 7416 7507 | .6440 .6621 .6622 .6648 .6673 .6673 .6658 .6683 | 5019 7002 7124 7220 7306 7321 7228 7287 7448 | .7860 .8160 .8201 .8218 .8258 .8252 .8232 .8249 .8293 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 .9067 | 9099 9391 9804 -1.1512 -1.6278 -1.6178 -1.5785 -1.5598 -1.5704 -1.5680 -1.5719 -1.5295 -1.5295 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 | 8 247 8 370 8 6 48 8 8 6 4 9 8 6 2 9 900 -1. 0 5 73 -1. 1 6 7 5 -1. 3 4 4 3 -1. 4 6 6 7 -1. 5 6 4 4 -1. 6 4 8 4 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.0899 1.1191 1.1688 1.2398 1.3104 | 6251/2.11 | ML C | 0636 .7259 1316 .7524 | .8243 | 5340 .9057 6728 .9601 | 2355 1.1980 -1. | .8287 | . 6435 . 9486 5937 . 4556 | . 4006 | . 2428 | . 4550 | , 4948 | . 5434 |
| 70000 66000 52000 57950 53950 50000 46000 42000 33475 29950 25950 22000 | 590 2 669 3 668 25 68 25 690 2 65 23 68 52 706 5 7416 7507 8 295 8148 | .6440 .6621 .6622 .6648 .6673 .6658 .6683 .6710 .6788 .6812 .6986 .6855 | 6019 7002 7124 7220 7306 7321 7228 7287 7448 7847 8114 8664 8657 | . 7860 .8160 .8 201 .8 218 .8 258 .8 252 .8 232 .8 249 .8 293 .8 417 .8 502 .8 718 .8 659 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 8066 8418 8983 8983 8351 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 .9067 .9114 .9258 .9380 .9579 .9860 | 9099 9391 9804 -1.1512 -1.6278 -1.5785 -1.5704 -1.5680 -1.5719 -1.5295 -1.5207 -1.4849 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 1.3624 1.3644 1.3431 1.3386 1.3194 | 8 247 8370 8648 8864 8857 9308 9628 9900 -1. 0573 -1. 1675 -1. 3443 -1. 4667 -1. 5644 -1. 6484 -1. 6147 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.1191 1.1688 1.2398 1.3104 1.3620 1.4088 1.3887 | 96251)/2.11 | ML C | -,0636 ,7259 -, | -, 2063 , 7809 -, 3204 , 8243 -, | 5340 .9057 6728 .9601 | -1.2355 1.1980 -1. | 3331 .8287 | 6435 .9486 | . 3337 . 4336 | . 9669 . 2428 | . 5676 . 4681 | , 5080 , 4948 , | .3957 .5434 |
| 70000 56000 52000 57950 53950 50000 46000 42000 33475 29950 25950 22000 17000 | 5902 6693 6685 68 23 6902 6523 6925 7065 7416 7507 8 295 8 148 9329 | .6440 .6621 .6622 .6648 .6673 .6673 .6658 .6683 .6710 .6788 .6812 .6986 .6855 .7225 | 6019 7002 7124 7220 7306 7321 7228 7287 7448 7847 8114 8664 8667 9838 | . 7860 .8160 .8 201 .8 218 .8 258 .8 252 .8 23 2 .8 249 .8 293 .8 417 .8 50 2 .8 718 .8 659 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 8066 8418 8983 8351 9882 | .8411 .8594 .8974 .9070 .9117 .9103 .9064 .9067 .9114 .9258 .9380 .9579 .9860 .9904 | 9099 9391 9804 - 1. 1512 - 1. 6278 - 1. 6178 - 1. 5785 - 1. 5598 - 1. 5704 - 1. 5680 - 1. 5719 - 1. 5295 - 1. 5207 - 1. 4849 - 1. 5550 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 1.3622 1.3644 1.3431 1.3386 1.3194 1.3552 | 8 247 8370 864 8857 9308 9628 9900 -1. 0573 -1. 1675 -1. 3443 -1. 4667 -1. 5644 -1. 6484 -1. 6147 -1. 6872 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.1191 1.1688 1.2398 1.3104 1.3620 1.4088 1.3887 1.4304 | 06 96251)/2.11 | CP ML C | -,0636 ,7259 -, | -, 2063 , 7809 -, 3204 , 8243 -, | 5340 .9057 6728 .9601 | -1.2355 1.1980 -1. | 3331 .8287 | 6435 .9486 | . 3337 . 4336 | . 9669 . 2428 | . 5676 . 4681 | , 5080 , 4948 , | .3957 .5434 |
| 70000 56000 52000 57950 53950 50000 46000 42000 33300 33375 22950 22000 17000 14000 | 590 2 669 3 668 5 68 23 690 2 6523 692 5 706 5 741 6 750 7 8 295 8 148 93 29 9448 | . 6440 . 6621 . 6622 . 6648 . 6673 . 6673 . 6658 . 66710 . 6788 . 6812 . 6986 . 6855 . 7225 . 7254 | 6019 7002 7124 7220 7306 7321 7228 7287 7448 7847 8114 8657 9838 9825 | . 7860 .8160 .8 201 .8 218 .8 258 .8 252 .8 232 .8 249 .8 293 .8 417 .8 50 2 .8 718 .8 659 .9 050 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 8066 8418 8983 8983 8983 8984 898 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 .9067 .9114 .9258 .9380 .9579 .9860 .9904 | 9099 9391 9804 -1.1512 -1.6278 -1.5785 -1.5785 -1.5798 -1.5704 -1.5719 -1.5295 -1.5207 -1.4849 -1.5550 -1.3709 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.368.2 1.3622 1.3644 1.3431 1.3386 1.3194 1.3552 1.3654 | 8 247 8370 86 48 88 64 88 57 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 4667 -1. 648 4 -1. 6147 -1. 6872 -1. 7007 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.0899 1.1191 1.1688 1.2398 1.3104 1.36 20 1.4088 1.3887 1.4304 1.4408 | 2.06 96251)/2.11 | ML C | -,0636 ,7259 -, | -, 2063 , 7809 -, 3204 , 8243 -, | 5340 .9057 6728 .9601 | -1.2355 1.1980 -1. | 3331 .8287 | 6435 .9486 | . 3337 . 4336 | . 9669 . 2428 | . 5676 . 4681 | , 5080 , 4948 , | .3957 .5434 |
| 70000 66000 62000 57950 53950 50000 46000 42000 333075 229950 22000 17000 14000 09900 | 5902 6693 6685 68 23 6902 6523 6852 7065 7416 7507 8 295 8 148 93 29 9448 - 1. 2056 | .6440 .6621 .6622 .6648 .6673 .6673 .6658 .6683 .6710 .6788 .6812 .6986 .6855 .7225 | 601970027124722073067321722872877448784781148864865798389825 -1.3185 | . 7860 .8160 .8 201 .8 218 .8 258 .8 252 .8 23 2 .8 249 .8 293 .8 417 .8 50 2 .8 718 .8 659 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 8066 8418 8983 8351 9882 1, 6418 1, 6418 | .8411 .8594 .8974 .9070 .9117 .9103 .9064 .9067 .9114 .9258 .9380 .9579 .9860 .9904 | 9099 9391 9804 - 1. 1512 - 1. 6278 - 1. 6178 - 1. 5785 - 1. 5598 - 1. 5704 - 1. 5680 - 1. 5719 - 1. 5295 - 1. 5207 - 1. 4849 - 1. 5550 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3688 1.3577 1.3682 1.3622 1.3644 1.3431 1.3386 1.3194 1.3552 | 8 247 8370 864 8857 9308 9628 9900 -1. 0573 -1. 1675 -1. 3443 -1. 4667 -1. 5644 -1. 6484 -1. 6147 -1. 6872 | 1.0217 1.0269 1.0878 1.0468 1.0467 1.0657 1.0789 1.1191 1.1688 1.2398 1.3104 1.3620 1.4088 1.3887 1.4304 | 2.06 96251)/2.11 | CP ML C | . 5776 0636 .7259 6256 1316 .7524 | .77033204 .8243 | 1,04436728 .9601 | 7598 -1.2355 1.1980 -1. | .7721 3331 .8287 | . 8932 6435 . 9486 4310 . 5937 . 4556 . | . 4310 . 3331 . 4336 | . 2005 . 9669 . 2428 | . 4092 . 5676 . 4681 | 4334 ,5080 ,4948 , | . 4681 . 3957 . 5434 |
| 70000 66000 52000 57950 53950 60000 42000 133000 133075 22950 22900 17000 14000 19900 17975 | 590 2 669 3 668 5 68 23 690 2 6523 692 5 706 5 741 6 750 7 8 295 8 148 93 29 9448 | . 6440 . 6621 . 6622 . 6648 . 6673 . 6673 . 6658 . 6681 . 6710 . 6788 . 6812 . 6986 . 6855 . 7 225 . 7 225 . 7 225 | 6019 7002 7124 7220 7306 7321 7228 7287 7448 7847 8114 8657 9838 9825 | . 7860 . 8160 . 8160 . 8 218 . 8 258 . 8 252 . 8 249 . 8 293 . 8 417 . 8 502 . 8 718 . 8 659 . 9 010 . 9 010 | 5613 6120 7247 7441 7527 7615 7615 7517 7626 8066 8418 8983 8351 9882 6418 1, 6195 1, 5206 1, 4205 | .8411 .8594 .8974 .9040 .9070 .9117 .9103 .9064 .9067 .9114 .9258 .9380 .9579 .9860 .9442 .2442 1.2356 | 9099 9391 9804 -1 . 1512 -1 . 6278 -1 . 6178 -1 . 5785 -1 . 5598 -1 . 5799 -1 . 5295 -1 . 5207 -1 . 4849 -1 . 3709 -1 . 3709 -1 . 3014 -1 . 3709 -1 . 3014 -1 . 3709 -1 . 3014 -1 . 3709 -1 . 3014 -1 . 3014 | 1. 0666 1. 0678 1. 0878 1. 0853 1. 1504 1. 3966 1. 3890 1. 3682 1. 3622 1. 3644 1. 3386 1. 3194 1. 3552 1. 3652 | 8247 8370 8648 8864 8857 9308 9628 9900 -1.0573 -1.1675 -1.3443 -1.4667 -1.5644 -1.6147 -1.6872 -1.7007 -1.373 | 1. 0217 7. 0269 1. 0468 1. 0468 1. 0467 1. 0789 1. 1191 1. 1688 1. 2398 1. 3104 1. 3528 1. 4088 1. 4088 1. 4088 1. 4088 1. 4088 1. 4088 1. 4081 1. 4088 1. 4081 1. 4088 1. | 06 96251)/2.11 | ML CP ML C | . 5776 0636 .7259 6256 1316 .7524 | .77033204 .8243 | 1,04436728 .9601 | 7598 -1.2355 1.1980 -1. | .7721 3331 .8287 | . 8932 6435 . 9486 4310 . 5937 . 4556 . | . 4310 . 3331 . 4336 | . 2005 . 9669 . 2428 | . 4092 . 5676 . 4681 | 4334 ,5080 ,4948 , | . 4681 . 3957 . 5434 |
| 70000 66000 62000 57950 53950 50000 46000 42000 33300 333775 229950 22000 17000 14000 09900 07975 06000 03450 | 590 2 - 6693 - 6685 - 68 23 - 690 2 - 6523 - 69 25 - 7416 - 7507 - 8 295 - 81 48 - 9 329 - 9448 - 1, 2056 - 1, 2723 - 1, 3359 | . 6440 . 6621 . 6622 . 6648 . 6673 . 6673 . 6658 . 6683 . 6710 . 6788 . 6812 . 6986 . 6855 . 7 225 . 7 224 . 7 284 . 7 284 . 8 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | 6019 7002 - 7124 - 7220 - 7306 - 7321 - 7287 - 7448 - 7847 - 8114 - 8657 - 9838 - 9825 - 13185 - 1 . 5038 - 1 . 5038 | . 7860 .8160 .8 201 .8 218 .8 258 .8 252 .8 232 .8 249 .8 293 .8 417 .8 550 .9 050 .9 010 1. 0077 1. 0682 1. 0040 | 5613 6120 7247 7441 7527 7615 7615 7498 7517 7626 8418 8983 8351 9882 -! 6418 -! 6195 -! 5206 -! 4205 -! 1. 6205 | | - 9999 - 9391 - 9804 -1.1512 -1.6278 -1.5798 -1.5798 -1.5704 -1.5798 -1.5207 -1.5207 -1.4849 -1.5550 -1.3709 -1.3719 -1.3840 - | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3688 1. 3577 1. 3622 1. 3644 1. 3319 1. 3386 1. 3194 1. 3552 1. 3622 1. 3624 1. 3274 1. 3274 1. 3274 | 8247 8370 8648 8664 9628 9900 -1.0573 -1.1675 -1.3443 -1.6667 -1.5644 -1.6147 -1.6872 -1.7007 -1.3666 -1.373 -1.1606 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 0899 1. 1191 1. 1689 1. 2398 1. 3104 1. 3620 1. 4304 1. 3620 1. 4304 1. 4304 1. 4304 1. 4304 1. 4304 1. 4304 1. 4304 1. 4304 1. 4304 1. 4505 1. | 2.06 96251)/2.11 | CP ML C | . 5776 0636 .7259 6256 1316 .7524 | .77033204 .8243 | 1,04436728 .9601 | 7598 -1.2355 1.1980 -1. | .7721 3331 .8287 | . 8932 6435 . 9486 4310 . 5937 . 4556 . | . 4310 . 3331 . 4336 | . 2005 . 9669 . 2428 | . 4092 . 5676 . 4681 | 4334 ,5080 ,4948 , | . 4681 . 3957 . 5434 |
| 70000 66000 52000 57950 53950 60000 46000 12000 133075 22900 17000 14000 19900 19900 19900 19900 19900 19950 1 | 5902 6693 68823 6902 6523 6852 7965 7416 7507 8295 8148 9329 9448 1 . 2056 1 . 3359 1 . 3359 1 . 3551 1 . 3551 | .6440 .6622 .6648 .6673 .6673 .6673 .6673 .6683 .6710 .6788 .6812 .6986 .6855 .7225 .7225 .7254 .7254 .7384 .7998 .8143 .8073 .8073 | 5019 - 7002 - 7124 - 7220 - 7336 - 7321 - 7228 - 7287 - 7448 - 7847 - 8864 - 8865 - 9825 - 1. 3155 - 1. 5038 - 1. 5038 | . 7860 .8160 .8201 .8218 .8258 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .0077 1.0689 1.0682 1.0040 .9541 | 5613 6120 7247 7441 7527 7615 7615 7517 7626 8048 8348 8983 8318 8983 8418 9882 -1, 6418 -1, 6418 -1 | | - 9999 - 9391 - 9804 -1.1512 -1.6278 -1.6785 -1.5785 -1.5794 -1.5704 -1.5719 -1.5207 -1.4849 -1.5700 -1.3709 -1.5001 -1.3709 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3890 1. 3890 1. 3682 1. 3622 1. 3642 1. 3431 1. 3386 1. 3552 1. 3654 1. 3194 1. 3274 1. 3274 1. 3274 1. 3274 1. 3294 1. 329 | 8247 8370 8648 8864 8857 9900 -1.0573 -1.1675 -1.3443 -1.4667 -1.5644 -1.6147 -1.6737 -1.7007 -1.6373 -1.1566 -1.3855 -1.1666 -1.3855 -1.1666 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 1689 1. 1199 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4308 1. 4408 1. 4408 1. 4408 1. 4405 1. 4555 1. 1555 1. 1555 | 2.06 96251)/2.11 | ML CP ML C | . 5776 0636 .7259 6256 1316 .7524 | .77033204 .8243 | 1,04436728 .9601 | 7598 -1.2355 1.1980 -1. | .7721 3331 .8287 | . 8932 6435 . 9486 4310 . 5937 . 4556 . | . 4310 . 3331 . 4336 | . 2005 . 9669 . 2428 | . 5676 . 4681 | 4334 ,5080 ,4948 , | . 4681 . 3957 . 5434 |
| 0000 6000 7950 3950 6000 6000 2000 3300 2300 23950 25950 2000 4000 9990 7775 96000 3450 3450 | | . 6440 . 6621 . 6622 . 6648 . 6673 . 6673 . 6678 . 6683 . 6718 . 6812 . 6986 . 6855 . 7225 . 7254 . 7254 . 7843 . 8073 . 7946 . 7733 | 6019 7002 7124 7220 7326 7321 7287 7448 7847 8114 8657 9838 9825 - 1. 3185 - 1. 5053 - 1. 5053 - 1. 5053 - 1. 3069 - 1. 1493 9425 | . 7860 .8160 .8201 .8218 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .9010 1.0077 1.0682 1.0682 1.0040 .9565 | 5613 6120 7247 7441 7527 7615 7615 7498 7517 7626 8418 8982 8418 8982 1, 6195 -1, 5206 -1, 4205 -1, 1630 8416 4205 1, 1630 8416 4205 1, 1630 3816 8416 | | - 9999 - 9391 - 9804 -1.1512 -1.6278 -1.678 -1.5785 -1.5798 -1.5704 -1.5680 -1.5704 -1.5550 -1.5207 -1.4849 -1.5550 -1.3709 -1.3001 -1.3934 -1.2270 -1.0152 - 7481 | 1. 0666 1. 0673 1. 10853 1. 1504 1. 3890 1. 3688 1. 3577 1. 3682 1. 3622 1. 3624 1. 3624 1. 3624 1. 3431 1. 3355 1. 3552 1. 3654 1. 3274 1. 274 1. 27 | 8247 8370 8648 8864 8857 9308 9900 -1.0573 -1.1675 -1.3443 -1.4667 -1.5644 -1.6147 -1.6872 -1.7007 -1.3366 -1.3855 -1.1606 9155 7479 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 0769 1. 1191 1. 1688 1. 2398 1. 3109 1. 3620 1. 4088 1. 3887 1. 4304 1. 4408 1. 4304 1. 4408 1. 4713 1. 2715 1. 1655 1. 1655 1. 0599 9911 | 2.06 96251)/2.11 | ML CP ML C | .1978 .57760636 .7259 | 3524 .77033204 .8243 | -1.1349 1.04436728 .9601 | 7184 .8951 -1.2355 1.1980 -1. | 3591 .7721 3331 .8287 | . 3374 . 8932 6435 . 9486 5699 . 4310 . 5937 . 4556 . | . 3556 . 4510 . 5556 . 4550 | . 9852 . 2005 . 9669 . 2428 | .6188 .4092 .5676 .4681 | 5202 4478 4818 5182 | . 5302 . 4476 . 4618 . 5132 4813 . 4681 . 3957 . 5434 |
| 0000 6000 12000 7950 0000 6000 12000 3 300 15950 15950 12000 7000 4000 17975 16000 3 3450 12500 12500 | 5902 6693 68823 6902 6523 6852 7965 7416 7507 8295 8148 9329 9448 1 . 2056 1 . 3359 1 . 3359 1 . 3551 1 . 3551 | .6440 .6622 .6648 .6673 .6673 .6673 .6673 .6683 .6710 .6788 .6812 .6986 .6855 .7225 .7225 .7254 .7254 .7384 .7998 .8143 .8073 .8073 | 5019 - 7002 - 7124 - 7220 - 7336 - 7321 - 7228 - 7287 - 7448 - 7847 - 8864 - 8865 - 9825 - 1. 3155 - 1. 5038 - 1. 5038 | . 7860 .8160 .8201 .8218 .8258 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .0077 1.0689 1.0682 1.0040 .9541 | 5613 6120 7247 7441 7527 7615 7615 7517 7626 8048 8348 8983 8318 8983 8418 9882 -1, 6418 -1, 6418 -1 | | - 9999 - 9391 - 9804 -1.1512 -1.6278 -1.6785 -1.5785 -1.5794 -1.5704 -1.5719 -1.5207 -1.4849 -1.5700 -1.3709 -1.5001 -1.3709 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3890 1. 3890 1. 3682 1. 3622 1. 3642 1. 3431 1. 3386 1. 3552 1. 3654 1. 3194 1. 3274 1. 3274 1. 3274 1. 3274 1. 3294 1. 329 | 8247 8370 8648 8864 8857 9900 -1.0573 -1.1675 -1.3443 -1.4667 -1.5644 -1.6147 -1.6737 -1.7007 -1.6373 -1.1566 -1.3855 -1.1666 -1.3855 -1.1666 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 1689 1. 1199 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4308 1. 4408 1. 4408 1. 4408 1. 4405 1. 4555 1. 1555 1. 1555 | 9612/2,06 96251)/2,11 | L CP ML CP ML C | .1978 .57760636 .7259 | 3524 .77033204 .8243 | -1.1349 1.04436728 .9601 | 7184 .8951 -1.2355 1.1980 -1. | 3591 .7721 3331 .8287 | -,3374 ,8932 -,6435 ,9486 -, ,5699 ,4310 ,5937 ,4556 | . 3556 . 4510 . 5556 . 4550 | . 9852 . 2005 . 9669 . 2428 | .6188 .4092 .5676 .4681 | 5202 4478 4818 5182 | . 5302 . 4476 . 4618 . 5132 4813 . 4681 . 3957 . 5434 |
| 0000 6000 52000 32000 33950 60000 60000 53975 22000 77000 77975 66000 33450 99900 99900 99900 915550 9900 9900 99 | - 5902 - 6685 - 6823 - 6902 - 6523 - 6852 - 6925 - 7416 - 7507 - 8295 - 8148 - 3229 - 9448 - 1, 2056 - 1, 2723 - 1, 3359 - 1, 1355 - 1, 1172 - 6886 | .6440 .6622 .6648 .6673 .6658 .6673 .6658 .6671 .6788 .6815 .7225 .7224 .7842 .7928 .8143 .8073 .7946 .7733 .7650 .6663 | - 5019 - 7002 - 7124 - 7220 - 7321 - 7287 - 7448 - 7847 - 8814 - 88657 - 9838 - 9825 - 1 3185 - 1 5038 - 1 5038 - 1 3038 - 9201 - 9201 - 4483 | .7860 .8160 .8201 .8218 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9010 .0077 1.0689 1.0689 1.0694 .9541 .9065 .8828 .7402 | 561361207247744175277645761576157517762680668418898383519882 -1.6418 -1.5206 -1.4205 -1.1630983781627267 | | - 9999 - 9391 - 9391 - 9391 - 1.512 - 1.6278 - 1.6178 - 1.6178 - 1.5704 - 1.5598 - 1.5704 - 1.5685 - 1.5207 - 1.4849 - 1.5205 - 1.3709 - 1.5007 - 1.4849 - 1.5205 - 1.3709 - 1.5007 - 1.4849 - 1.5205 - 1.3709 - 1.5007 - 1 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3577 1. 3682 1. 3577 1. 3682 1. 3644 1. 3431 1. 3386 1. 3194 1. 3552 1. 3654 1. 3726 1. 372 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6667 -1. 5644 -1. 6484 -1. 6484 -1. 6484 -1. 6487 -1. 6373 -1. 6376 -1. 3556 -1. 3556 -1. 3656 -1. 3655 -1. 1606 9155 -1. 7479 7945 3117 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 0789 1. 1191 9. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4304 1. 4408 1. 4304 1. 4408 1. 4033 1. 2715 1. 1655 1. 1655 1. 1655 1. 1655 1. 1696 8213 | 06 9612/2.06 96251)/2.11 | ML CP ML C | .1978 .57760636 .7259 | .77033204 .8243 | -1.1349 1.04436728 .9601 | 7184 .8951 -1.2355 1.1980 -1. | 3591 .7721 3331 .8287 | -,3374 ,8932 -,6435 ,9486 -, ,5699 ,4310 ,5937 ,4556 | . 3556 . 4510 . 5556 . 4550 | . 9852 . 2005 . 9669 . 2428 | . 4092 . 5676 . 4681 | 5202 4478 4818 5182 | . 4681 . 3957 . 5434 |
| 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 | - 5902 - 6693 - 6682 - 6823 - 6902 - 6523 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 9329 - 9448 - 1 2056 - 1 2723 - 1 3359 - 1 3051 - 1 1535 - 1 1172 - 6886 | .6440 .6622 .6648 .6673 .6673 .6658 .66710 .6788 .6812 .6986 .6855 .7225 .7224 .734 .7842 .7998 .8143 .7946 .733 .7946 .733 .7946 .735 .7650 .6663 | - 5019 - 7002 - 7124 - 7220 - 7336 - 7321 - 7287 - 7448 - 8864 - 88657 - 88657 - 88657 - 88657 - 13185 - 1, 5053 - 1, 5053 - 1, 1903 - 1, 1903 - 1, 1903 - 1, 4483 | .7860 .8160 .8201 .8218 .8252 .8252 .8249 .8293 .8417 .8502 .8718 .8659 .9010 .0077 1.0682 1.00682 1.00682 1.00682 | | . 8411 8594 9974 9070 9117 9117 9103 9064 9067 9114 9258 9380 9579 9860 9904 1. 2442 1. 2356 1. 1547 1. 1547 1. 1547 1. 1547 1. 2582 | - 9099 - 9391 - 9804 -1.1512 -1.6278 -1.5785 -1.5798 -1.5704 -1.5719 -1.5297 -1.4849 -1.5700 -1.5001 -1.3709 -1.5001 -1.3709 -1.5001 -1.3934 -1.3709 -1.5001 -1.3934 -1.3936 - | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3682 1. 3577 1. 3682 1. 3644 1. 3431 1. 3382 1. 3592 1. 3654 1. 3274 1. 374 1. 2726 1. 2726 1. 1949 1. 1949 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6644 -1. 6147 -1. 6872 -1. 7007 -1. 5373 -1. 3565 -1. 1606 -9155 -7479 -7945 -3117 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 1689 1. 1198 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 4304 1. 4408 1. 4408 1. 4408 1. 4555 1. 1555 1. | 06 9612/2.06 96251)/2.11 | L CP ML CP ML C | .1978 .57760636 .7259 | 3524 .77033204 .8243 | -1.1349 1.04436728 .9601 | 7184 .8951 -1.2355 1.1980 -1. | 3591 .7721 3331 .8287 | -,3374 ,8932 -,6435 ,9486 -, ,5699 ,4310 ,5937 ,4556 | . 3556 . 4510 . 5556 . 4550 | . 9852 . 2005 . 9669 . 2428 | .6188 .4092 .5676 .4681 | 5202 4478 4818 5182 | . 5302 . 4476 . 4618 . 5132 4813 . 4681 . 3957 . 5434 |
| 700000 70000 70000 70000 70000 70000 70000 70000 70000 700000 70000 70000 70000 70000 70000 70000 70000 70000 700000 70000 70000 70000 70000 70000 70000 70000 70000 700000 70000 | | .6440 .6621 .6622 .6648 .6673 .6673 .6673 .6678 .6710 .6788 .6812 .986 .6812 .7254 .7254 .7254 .7254 .7342 .7943 .7456 | 6019 7002 7124 7220 7321 - 7228 7321 - 7228 7448 8657 8114 8657 9838 9825 - 1. 3185 - 1. 5053 - 1. 15053 - 1. 1493 - 1493 | .7860 .8160 .8201 .8218 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .9010 .10077 .10682 .10040 .9541 .9065 .8828 .7402 | 561361207247744175277645761574987517762680668418898383189882 -1.6418 -1.5206 -1.4205 -1.16309837816272672671 | | - 9999 - 9391 - 9391 - 16278 - 16278 - 16578 - 15598 - 15704 - 15598 - 15707 - 14849 - 15507 - 14849 - 15507 - 14849 - 15507 - 14849 - 15507 - 14819 - 1505 - 1505 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3662 1. 3622 1. 3644 1. 3431 1. 3386 1. 377 1. 3682 1. 3654 1. 3431 1. 3552 1. 3654 1. 3726 1. 3726 1. 3726 1. 3726 1. 3727 1. 3727 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 4667 -1. 5644 -1. 6147 -1. 6872 -1. 7007 -1. 5366 9155 -1. 1606 9155 -1. 1606 9155 17479 945 3117 | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 0.789 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3620 1. 4088 1. 3887 1. 4304 1. 4408 1. 4033 1. 2715 1. 1655 1. 0.555 1. 0.555 1. 0.599 9911 1. 0.906 8. 2198 2. 2998 2. 0.000 | 110/2.06 9612/2.06 962511/2.11 | ML CP ML CP ML C | . 5389 . 1978 . 5776 0836 . 7259 5830 . 0674 . 6256 1316 . 7524 | . 1222 - 3524 7703 - 3204 8243 | | .81957184 .8951 -1.2355 1.1980 -1. | 7669 3591 .7721 3331 .8287 | . 7556 3374 . 8932 6435 . 9486 4086 . 5699 . 4310 . 5937 . 4556 . | . 1556. 1510 . 1556. 1556. | 3704 6573 3015 3015 3669 2428 | . 3855 . 6188 . 4092 . 5676 . 4681 . | 4206 5202 4478 4534 , 5080 , 4948 | . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 700000 700000 700000 700000 700000 700000 700000 700000 7000000 700000 700000 700000 700000 7000000 7000000 7000000 700000000 | - 5902 - 6693 - 6682 - 6823 - 6902 - 6523 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 9329 - 9448 - 1 2056 - 1 2723 - 1 3359 - 1 3051 - 1 1535 - 1 1172 - 6886 | .6440 .6622 .6648 .6673 .6673 .6658 .66710 .6788 .6812 .6986 .6855 .7225 .7224 .734 .7842 .7998 .8143 .7946 .733 .7946 .733 .7946 .735 .7650 .6663 | - 5019 - 7002 - 7124 - 7220 - 7336 - 7321 - 7287 - 7448 - 8864 - 88657 - 88657 - 88657 - 88657 - 13185 - 1, 5053 - 1, 5053 - 1, 1903 - 1, 1903 - 1, 1903 - 1, 4483 | .7860 .8160 .8201 .8218 .8252 .8252 .8249 .8293 .8417 .8502 .8718 .8659 .9010 .0077 1.0682 1.00682 1.00682 1.00682 | | 8 411 8 594 9974 9040 9970 9117 9103 9064 9964 9380 9579 9860 9904 1: 2356 1: 1931 1: 1547 1: 0542 9883 9390 8979 7407 | - 9999 - 9991 - 9804 -1.1512 -1.6278 -1.6278 -1.5704 -1.5598 -1.5704 -1.5207 -1.5207 -1.4849 -1.5550 -1.3709 -1.4849 -1.5550 -1.3709 -1.4849 -1.5207 -1.4849 -1.5207 -1.4849 -1.5207 -1.4849 -1.5207 -1.4849 -1.5207 -1.4849 -1.5207 -1.3709 -1.3934 -1.2270 -1.3934 -1.2270 -1.3934 -1.2270 -1.3934 -1.2270 -1.3934 -1.2270 -1.3934 -1.2270 -1.3934 - | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3682 1. 3577 1. 3682 1. 3644 1. 3431 1. 3382 1. 3592 1. 3654 1. 3274 1. 374 1. 2726 1. 2726 1. 1949 1. 1949 | 8247 8370 8648 8864 8857 9308 9628 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6484 -1. 6147 -1. 6373 -1. 5366 -1. 1676 -1. 3655 -1. 1606 9155 -1. 1707 -1. 3855 -1. 1153 -1. | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.789 1. 1198 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 304 1. 3620 1. 4088 1. 3404 1. 4033 1. 4715 1. 655 1. 0.559 9911 1. 0.059 9911 1. 0.059 8. 213 | 110/2.06 9612/2.06 962511/2.11 | ML CP ML CP ML C | . 5389 . 1978 . 5776 0836 . 7259 5830 . 0674 . 6256 1316 . 7524 | . 1222 - 3524 7703 - 3204 8243 | | .81957184 .8951 -1.2355 1.1980 -1. | 7669 3591 .7721 3331 .8287 | . 7556 3374 . 8932 6435 . 9486 4086 . 5699 . 4310 . 5937 . 4556 . | . 1556. 1510 . 1556. 1556. | 3704 6573 3015 3015 3669 2428 | . 3855 . 6188 . 4092 . 5676 . 4681 . | 4206 5202 4478 4534 , 5080 , 4948 | . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 00000 06000 060000 07950 03950 060000 050000 050000 050000 07950 07950 07950 07950 07950 07950 07950 07950 07950 07950 | - 5902 - 6685 - 6823 - 6682 - 6952 - 6952 - 6955 - 7065 - 7416 - 7507 - 8295 - 8148 - 1, 2056 - 1, 2723 - 1, 3359 - 1, 1175 - 1, 1175 - 1, 1175 - 1, 1175 - 1, 176 - 1, 6638 - 1, 6638 - 3319 - 6616 | .6440 .6621 .6622 .6648 .6673 .6673 .6678 .6883 .6710 .6788 .6812 .6986 .6855 .7225 .7254 .7842 .7842 .7998 .8143 .7050 .6663 | - , 6019 - , 7002 - , 7124 - , 7220 - , 7321 - , 7228 - , 7287 - , 7448 - , 8864 - , 8865 - , 8811 - , 8865 - , 8857 - , 9825 - 1, 3185 - 1, 5038 - 1, 5038 - 1, 5038 - 1, 3069 - 1, 4483 - , 9201 - , 4483 - , 9454 - , 94 | .7860 .8160 .8 201 .8 218 .8 252 .8 232 .8 249 .8 293 .8 417 .8 550 .9 010 .0 071 .0 068 .1 .0 040 .0 072 .3 682 .2 754 .0 040 .0 072 .0 072 .3 662 .3 662 | 561361207724774417527764576157615761576157616806680668418898383519882 -1.6418 -1.5206 -1.4205 -1.16309837816272672671 | 8 411 8 594 9974 9040 9970 9117 9103 9064 9067 9114 9258 9380 9579 9860 1, 2456 1, 1931 1, 1542 9883 9380 8979 7407 | - 9999 - 9391 - 9391 - 9391 - 9391 - 16278 - 16178 - 16178 - 15704 - 15598 - 15704 - 15680 - 15719 - 15207 - 1484 - 15270 - 13934 - 12270 - 14052 - 7481 - 5685 - 5408 - 9944 - 9830 - 1, 1292 - 1, 0833 - 9119 - 8871 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3577 1. 3682 1. 3577 1. 3682 1. 3644 1. 3431 1. 3431 1. 3431 1. 3452 1. 3654 1. 3752 1. 3654 1. 3752 1. 3654 1. 3752 1. 3654 1. 3752 1. 375 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 1675 -1. 5644 -1. 6672 -1. 7007 -1. 6373 -1. 1675 -1. 1536 -1. 1536 - | 1. 0.217 1. 0.269 1. 0.878 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 0.699 1. 0.899 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3487 1. 4408 1. 4408 1. 4408 1. 408 1. 408 1. 0.599 991 1. 10.099 8. 213 2. 298 0. 0000 0. 0708 2. 208 2. 208 2. 208 | 110/2.06 9612/2.06 962511/2.11 | L CP ML CP ML C | . 5389 . 1978 . 5776 0836 . 7259 5830 . 0674 . 6256 1316 . 7524 | . 1222 - 3524 7703 - 3204 8243 | | .81957184 .8951 -1.2355 1.1980 -1. | 7669 3591 .7721 3331 .8287 | . 7556 3374 . 8932 6435 . 9486 4086 . 5699 . 4310 . 5937 . 4556 . | . 1556. 1510 . 1556. 1556. | 3704 6573 3015 3015 3669 2428 | .6188 .4092 .5676 .4681 | 4206 5202 4478 4534 , 5080 , 4948 | . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 00000 66000 | - 5902 - 6693 - 6683 - 6882 - 6902 - 5523 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 9329 - 1 3359 - 1 3359 - 1 3051 - 1 1535 - 1 1172 - 6886 surface - 7247 - 1 6639 - 1 6638 - 3519 - 6616 | .6440 .6621 .6622 .6648 .6673 .6673 .6683 .6718 .6886 .6812 .6986 .6855 .7225 .7225 .7225 .7398 .8143 .8073 .7946 .7733 .7650 .6663 | - 5019 - 7002 - 7124 - 7220 - 7326 - 7321 - 7287 - 7448 - 8657 - 8864 - 8657 - 8865 - 13185 - 1, 5053 - 1, | .7860 .8160 .8201 .8218 .8252 .8252 .8249 .8293 .8417 .8502 .8718 .8659 .9010 .0077 1.0682 1.00682 1.00682 1.0060 .9541 .9065 .8828 .7402 | 5613 6120 7247 7441 7527 7645 7615 7498 7517 7626 8066 8418 8983 8351 9882 1.6195 -1.5206 -1.1630 3827 3835 3816 382 | 8 411 8 594 9974 9040 9970 9117 9103 9064 9380 9579 9860 99860 9994 1. 2442 1. 2356 1. 1931 1. 1547 1. 0542 9883 9390 8977 7407 2258 2402 4013 5085 5045 5045 5045 5045 5045 5045 5045 | - 9999 - 9991 - 9804 -1.1512 -1.6278 -1.678 -1.5798 -1.5795 -1.5207 -1.5207 -1.3207 -1.3499 -1.5550 -1.3700 -1.3709 -1.3207 -1.4849 -1.5550 -1.3709 -1.3207 -1 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3662 1. 3622 1. 3622 1. 3644 1. 3431 1. 3431 1. 3431 1. 3431 1. 3452 1. 3654 1. 3274 1. 3274 1. 3274 1. 3274 1. 3284 1. 32884 1. 32 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 644 -1. 6484 -1. 6147 -1. 6872 -1. 7007 -1. 5365 -1. 1606 9155 7479 74 | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 0.899 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 4398 1. 4304 1. 4408 1. 4303 1. 2715 1. 1655 1. 1655 1. 2715 1. 1655 1. 2998 0000 0708 2208 4007 5273 | 110/2.06 9612/2.06 962511/2.11 | ML CP ML CP ML C | .1858 .5889 .1978 .57760636 .7259 .0522 .5830 .0674 .62561316 .7524 | . 3590 . 7122 - 3524 . 7703 . 3204 . 8243 - | 8327 8363 8696 . 9478 5340 . 9057 6128 9101 1.0354 6728 9601 | 7124 .81957184 .8951 -1.2355 1.1980 -1. | 3392 . 7069 3591 . 7721 3331 . 8287 | 5011 .75563374 .89326435 .9486 .5568 .4086 .5699 .4310 .5937 .4556 | . 0554, 1556, 0154, 5556, 0504, 5556. | 3704 6573 3015 3015 3669 2428 | . 3855 . 6188 . 4092 . 5676 . 4681 . | 4206 5202 4478 4534 , 5080 , 4948 | . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 70000 552000 552000 552000 552000 552000 552000 552000 552000 5520000 5520000 55200000000 | - 5902 - 6685 - 6882 - 6685 - 6882 - 6952 - 6952 - 7416 - 7507 - 8295 - 8148 - 9329 - 9448 - 1, 2723 - 1, 3359 - 1, 1172 - 1, 1535 - 1, 1172 - 1, 1688 - 3219 - 1, 6688 - 3319 - 6616 - 3925 - 3319 - 6616 - 3925 - 2209 | .6440 .6621 .66622 .6643 .6673 .6673 .6673 .6678 .6886 .6883 .6710 .7225 .7224 .7398 .8413 .7255 .7254 .733 .7946 .733 .750 .6663 | - , 6019 - , 7002 - , 7124 - , 7220 - , 7321 - , 7228 - , 7287 - , 7448 - , 8864 - , 8865 - , 9825 - 1, 3185 - , 1, 5053 - 1, 5053 - 1, 5053 - 1, 5053 - 1, 5048 - , 9201 - , 4483 - , 9454 - , 9201 - , 4483 - , 9454 - , | .7860 .8160 .8201 .8218 .8252 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .9010 .0077 .0689 .1.0040 .9541 .9065 .8828 .7402 | 561361207247744175277645761574987517762680668418898383519882 -1.6418 -1.6195 -1.5206 -1.4205 -1.6206 -1.4205 -1.6306 -1.4205 -1.4205 -1.6306 -1.4205 -1.42 | | - 9999 - 9391 - | 1. 0666 1. 0678 1. 0678 1. 1596 1. 3966 1. 3890 1. 3577 1. 3682 1. 3644 1. 3431 1. 3386 1. 3131 1. 3431 1. 3431 1. 3552 1. 3654 1. 3726 1. 3727 1. | 82478370864888649900 -1.0573 -1.1675 -1.3443 -1.4667 -1.5644 -1.6484 -1.6484 -1.6147 -1.6872 -1.7007 -1.33669155 -1.16069155 -1.16069155 -1.16069155 -1.16069155 -1.16069155 -1.16069155 -1.160691559176917 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 0789 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3620 1. 4088 1. 3620 1. 4088 1. 3620 1. 4088 1. 373 1. 4008 1. 4008 1. 4033 1. 2715 1. 1655 1. 0559 9911 1. 0906 8. 2198 8. 2998 9. 4007 9. 2998 9. 4007 9. 2798 9. 4007 9. 5793 9. 5794 9. 5793 9. 5793 9. 5793 9. 5794 9. 5793 9. 5794 9. 5794 | 110/2.06 9612/2.06 962511/2.11 | ML CP ML CP ML C | .1858 .5889 .1978 .57760636 .7259 .0522 .5830 .0674 .62561316 .7524 | . 3590 . 7122 - 3524 . 7703 . 3204 . 8243 - | 8327 8363 8696 . 9478 5340 . 9057 6128 9101 1.0354 6728 9601 | 7124 .81957184 .8951 -1.2355 1.1980 -1. | 3392 . 7069 3591 . 7721 3331 . 8287 | 5011 .75563374 .89326435 .9486 .5568 .4086 .5699 .4310 .5937 .4556 | . 0554, 1556, 0154, 5556, 0504, 5556. | . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 6007 . 3855 . 5188 . 4092 . 5676 . 4681 . | 5473 ,4075 ,5637 ,4334 ,5080 ,4948 ,5143 4206 ,5200 ,4478 | . 4667 . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 70000 562000 57950 53950 50000 46000 333005 33375 50000 14000 33300 14000 33300 14000 33450 00000 1550 00000 00000 00000 000000 00000 00000 0000 | - 5902 - 6685 - 6823 - 6902 - 6523 - 6925 - 7065 - 7416 - 7507 - 8148 - 9329 - 9448 - 1, 2723 - 1, 3359 - 1, 3051 - 1, 1723 - 1, 1723 - 1, 3639 - 1, 3051 - 1, 2723 - 1, 3359 - 1, 3051 - 1, 2723 - 1, 3051 - 1, 2723 - 1, 3051 - 1 | .6440 .6621 .66622 .6648 .6673 .6673 .6678 .6683 .6718 .6812 .6986 .6855 .7255 .7254 .7842 .7998 .8143 .8073 .7946 .7733 .7650 .6663 | - 5019 - 7002 - 7124 - 7220 - 7326 - 7321 - 7287 - 7448 - 7847 - 8864 - 88657 - 9838 - 9825 - 1, 3185 - 1, 5053 - 1, 5038 - 1, 4483 - 9825 - 1, 3484 - 38657 - 1, 3657 - 1, 3658 - 1, 3658 | . 7860 . 8160 . 8201 . 8218 . 8252 . 8232 . 8249 . 8233 . 8417 . 8502 . 8718 . 8659 . 9010 . 1.0079 1.0682 1.0040 . 9541 . 9065 . 8828 . 7402 . 2754 . 0000 . 0723 . 2662 . 3662 . 4663 . 5163 . 5163 | 5613612072477441752776457615761576168016 | 8 411 8 594 9 9070 9 117 9 106 9 9070 9 117 9 106 9 906 9 114 9 258 9 380 9 990 4 2 442 1 2 356 1 1547 1 1 0 542 2 0 000 1 1015 2 2 402 4 401 3 508 5 5 559 7 59 40 | - 9999 - 9391 - 9391 - 9391 - 16278 - 16278 - 15785 - 1,5785 - 1,5785 - 1,5785 - 1,5785 - 1,5207 - 1,485 - 1,5207 - 1,485 - 1,5207 - 1,485 - 1,5207 - 1,485 - 1,5207 - 1,485 - 1,5207 - 1,481 - 1,5207 - 1,52 | 1. 0666 1. 0678 1. 0853 1. 1504 1. 3966 1. 3890 1. 3682 1. 3577 1. 3682 1. 3644 1. 3431 1. 3386 1. 3194 1. 3452 1. 3654 1. 3746 1. 374 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 644 -1. 6484 -1. 6147 -1. 6872 -1. 7007 -1. 5365 -1. 1606 9155 7479 74 | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 0.899 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 4398 1. 4304 1. 4408 1. 4303 1. 2715 1. 1655 1. 1655 1. 2715 1. 1655 1. 2998 0000 0708 2208 4007 5273 | 9610/2.06 9612/2.06 962511/2.11 | ML CP ML CP ML C | .1858 .5889 .1978 .57760636 .7259 .0522 .5830 .0674 .62561316 .7524 | . 3590 . 7122 - 3524 . 7703 . 3204 . 8243 - | 8327 8363 8696 . 9478 5340 . 9057 6128 9101 1.0354 6728 9601 | 7124 .81957184 .8951 -1.2355 1.1980 -1. | 3392 . 7069 3591 . 7721 3331 . 8287 | 5011 .75563374 .89326435 .9486 .5568 .4086 .5699 .4310 .5937 .4556 | . 0554, 1556, 0154, 5556, 0504, 5556. | . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 6007 . 3855 . 5188 . 4092 . 5676 . 4681 . | 5473 ,4075 ,5637 ,4334 ,5080 ,4948 ,5143 4206 ,5200 ,4478 | . 4667 . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 700000 700000 700000 70000 70000 70000 70000 70000 70000 70000 70000 70000 70000 700000 70000 70000 70000 70000 70000 70000 70000 70000 70000 700000 700000 700000 700000 700000 700000 700000 700000 70000 | - 5902 - 6685 - 6882 - 6685 - 6882 - 6952 - 6952 - 7416 - 7507 - 8295 - 8148 - 9329 - 9448 - 1, 2723 - 1, 3359 - 1, 1172 - 1, 1535 - 1, 1172 - 1, 1688 - 3219 - 1, 6688 - 3319 - 6616 - 3925 - 3319 - 6616 - 3925 - 2209 | .6440 .6621 .66622 .6643 .6673 .6673 .6673 .6678 .6886 .6883 .6710 .7225 .7224 .7398 .8413 .7255 .7254 .733 .7946 .733 .750 .6663 | - , 6019 - , 7002 - , 7124 - , 7220 - , 7321 - , 7228 - , 7287 - , 7448 - , 8864 - , 8865 - , 9825 - 1, 3185 - , 1, 5053 - 1, 5053 - 1, 5053 - 1, 5053 - 1, 5048 - , 9201 - , 4483 - , 9454 - , 9201 - , 4483 - , 9454 - , | .7860 .8160 .8201 .8218 .8252 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .9010 .0077 .0689 .1.0040 .9541 .9065 .8828 .7402 | 561361207247744175277645761574987517762680668418898383519882 -1.6418 -1.6195 -1.5206 -1.4205 -1.6206 -1.4205 -1.6306 -1.4205 -1.4205 -1.6306 -1.4205 -1.42 | | - 9999 - 9391 - | 1. 0666 1. 0678 1. 0678 1. 1596 1. 3966 1. 3890 1. 3577 1. 3682 1. 3644 1. 3431 1. 3386 1. 3131 1. 3431 1. 3431 1. 3552 1. 3654 1. 3726 1. 3727 1. | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6644 -1. 6147 -1. 6872 -1. 7007 -1. 5366 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3117 | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4304 1. 4088 1. 4088 1. 4083 1. 4084 1. 4083 1. 4084 1. 408 | 9610/2.06 9612/2.06 962511/2.11 | ML CP ML CP ML C | .1858 .5889 .1978 .57760636 .7259 .0522 .5830 .0674 .62561316 .7524 | . 1222 - 3524 7703 - 3204 8243 | 8327 8363 8696 . 9478 5340 . 9057 6128 9101 1.0354 6728 9601 | 7124 .81957184 .8951 -1.2355 1.1980 -1. | 3392 . 7069 3591 . 7721 3331 . 8287 | 5011 .75563374 .89326435 .9486 .5568 .4086 .5699 .4310 .5937 .4556 | . 0554, 1556, 0154, 5556, 0504, 5556. | . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 6007 . 3855 . 5188 . 4092 . 5676 . 4681 . | 5473 ,4075 ,5637 ,4334 ,5080 ,4948 ,5143 4206 ,5200 ,4478 | . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 70000 52000 522000 57950 50000 500000 500000 500000 500000 5000000 | - 5902 - 6693 - 6683 - 6882 - 6902 - 5523 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 9329 - 1,3359 - 1,3359 - 1,3359 - 1,3658 - 1,172 - 6886 surface - 7247 - 6639 - 1,623 - | .6440 .6621 .6622 .6648 .6673 .6673 .6678 .6683 .6710 .6788 .6812 .6986 .6855 .7225 .7225 .7225 .7388 .8143 .8073 .7946 .7733 .7650 .6663 | - 5019 - 7002 - 7124 - 7220 - 7321 - 7287 - 7448 - 8657 - 8864 - 8657 - 8865 - 13185 - 1, 5053 - | . 7860 8 160 8 201 8 218 8 252 8 252 8 249 8 293 8 417 8 502 8 718 9 9010 1.0077 1.0682 1.00682 1.00682 1.0060 9 541 9 905 8 8 28 7 402 | 561361207247744175277645761574987517762680668418898383519882641889831,52061,62061,42051,630383781627267267199733673381224751541117003910012 | 8 411 8 594 9 9070 9 117 9 103 9 9064 9 9070 9 114 9 258 9 380 9 579 9 860 9 904 1. 2345 1. 1547 1. 1547 1. 1547 1. 528 2 9 883 9 390 8 979 7 407 7 240 2 401 3 508 5 5 59 7 5 9 7 6 6 6 8 8 6 6 48 9 | - 9999 - 9804 - 1.1512 - 1.6278 - 1.678 - 1.678 - 1.5785 - 1.5598 - 1.5704 - 1.5207 - 1.5207 - 1.5207 - 1.3934 - 1.550 - 1.3709 - 1.5007 - 1.3934 - 1.270 - 1.148 - 1.270 - 1.192 - 7.481 - 1.9833 - 1.994 - 1.993 - 1 | 1. 0666 1. 0678 1. 0678 1. 1850 1. 13966 1. 3890 1. 3662 1. 3622 1. 3642 1. 3643 1. 3431 1. 3431 1. 3431 1. 3552 1. 3654 1. 36 | 8247 8370 8364 8864 8867 9308 9900 -1. 0573 -1. 1467 -1. 5644 -1. 6484 -1. 6487 -1. 6373 -1. 5366 -1. 1606 -1. 3855 -7. 479 7945 7947 7959 7947 7979 7947 79 | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.789 1. 1198 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 304 1. 3620 1. 4088 1. 304 1. 4408 1. 4408 1. 4033 1. 2715 1. 1655 1. 0.599 9911 1. 0.059 8. 213 2998 0000 0.708 8. 213 | (2.05 9610/2.06 9612/2.06 9625 ¹¹ /2.11 | ML CP ML CP ML C | . 4555 . 1838 . 5389 . 1978 . 5776 0636 . 7259 | . 5893 | 7208 - 8327 - 8563 - 8696 9478 - 5340 9657 - 57208 - 1,0354 - 9191 - 1,1349 1,0443 - 6728 9601 - 1 | .66417124 .81957184 .8951 -1.2355 1.1980 -1. | . 5832 - 3392 . 7069 - 3591 . 7721 - 3331 . 8287 - | . 6179 - 5011 . 7556 - 3374 . 8932 . 6435 . 9486 | . 0004. 1686. 0184. 8506. 0004. 0006. | . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | .3301 .6007 .3855 .6188 .4092 .5676 .4681 | 3467 , 5473 , 4075 , 5637 , 4334 , 5080 , 4948 , 3567 3143 4206 , 5003 4478 | 3728 .4667 .4386 .4681 .3957 .5434 . |
| 00000 632000 632000 632000 632000 630000 640000 633075 633075 620000 633075 630000 630000 630000 630000 630000 630000 630000 630000 630000 630000 6300000 6300000 63000000 6300000000 | - 5902 - 6685 - 6823 - 6902 - 6523 - 6952 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 1, 2056 - 1, 2723 - 1, 3359 - 1, 1752 - 1, 1172 - 1, 6638 - 3319 - 6616 - 3925 - 2509 - 1, 1673 - 1, 1639 - 1, 1638 - 1, 1723 - 1, 1555 - 1, 177 - 1, 1639 - 1, | .6440 .6621 .66622 .6648 .6673 .6673 .6673 .6688 .6812 .6986 .6855 .7225 .7254 .7255 .7254 .7842 .7998 .8143 .8073 .7996 .7050 .6663 .7073 .7073 .6663 .7073 .7073 .7074 | - , 6019 - , 7002 - , 7124 - , 7220 - , 7321 - , 7228 - , 7287 - , 7448 - , 7847 - , 8864 - , 8865 - , 8857 - , 9838 - , 9825 - 1, 3053 - 1, 5038 - 1, 5053 - 1, 5053 - 1, 5048 - , 9201 - , 4483 - , 9454 - , 945 | .7860 .8160 .8201 .8218 .8252 .8232 .8249 .8293 .8417 .8502 .8718 .8659 .9050 .9010 .0077 .1.0682 .1.0040 .9065 .8828 .7402 .2754 .0000 .723 .2066 .24683 .5163 .5163 .5473 .5698 .5879 .5999 | 561361207247744175277645761574987517762680668418898383519882 -1.6418189833519882 -1.64181898336372671 | | - 9999 - 9391 - | 1. 0666 1. 0678 1. 0678 1. 1504 1. 3966 1. 3890 1. 3577 1. 3682 1. 3577 1. 3682 1. 3577 1. 3682 1. 3577 1. 3682 1. 3644 1. 3431 1. 3386 1. 3195 1. 3654 1. 3726 1. 1010 9192 9085 7378 2300 1. 273 284 4496 5644 6617 6621 6608 7169 7358 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 1675 -1. 3644 -1. 6147 -1. 6872 -1. 7007 -1. 6373 -1. 1536 -1. 3855 -1. 1604 -1. 3855 -1. 1604 -1. 1537 -1. 1537 - | 1. 0.217 1. 0.269 1. 0.878 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 1191 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4408 1. 4408 1. 4408 1. 407 1. 1555 1. 1559 991 1. 1099 991 1. 1099 8. 213 2998 0000 0708 2208 4007 5273 5940 6431 6654 7015 7349 7401 | 06/2.05 9610/2.06 9612/2.06 9625 ¹¹ /2.11 | ML CP ML CP ML CP ML C | . 4555 . 1838 . 5389 . 1978 . 5776 0636 . 7259 | . 5893 | 7208 - 8327 - 8563 - 8696 9478 - 5340 9657 - 57208 - 1,0354 - 9191 - 1,1349 1,0443 - 6728 9601 - 1 | .66417124 .81957184 .8951 -1.2355 1.1980 -1. | . 5832 - 3392 . 7069 - 3591 . 7721 - 3331 . 8287 - | . 6179 - 5011 . 7556 - 3374 . 8932 . 6435 . 9486 | . 0004. 1686. 0184. 8506. 0004. 0006. | . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | .3301 .6007 .3855 .6188 .4092 .5676 .4681 | 3467 , 5473 , 4075 , 5637 , 4334 , 5080 , 4948 , 3567 3143 4206 , 5003 4478 | 3728 .4667 .4386 .4681 .3957 .5434 . |
| 70000 682000 77950 68000 682000 7795 | - 5902 - 6693 - 6683 - 68823 - 6902 - 6523 - 8952 - 7916 - 7907 - 8148 - 9329 - 9448 - 1 2056 - 1 3723 - 1 3559 - 1 3051 - 1 525 - 1 1172 - 6886 surface - 7247 1 6639 1 6616 - 3925 - 2009 1577 - 1263 - 30087 - 10139 - 10439 - | .6440 .6621 .66622 .66648 .6673 .6673 .6678 .6683 .6718 .6885 .7254 .7254 .7842 .7998 .8143 .8073 .7946 .7733 .7650 .6663 .7754 .775 | - 5019 - 7002 - 7124 - 7220 - 7321 - 7287 - 7448 - 8657 - 8864 - 8657 - 9838 - 1385 - 1,5053 - 1,5053 - 1,5053 - 1,483 - 9825 - 1,3653 - 1,5053 - 1 | . 7860 8160 8201 8218 8252 8252 8249 8293 8417 8502 8718 8659 9010 1.0077 1.0682 1.0040 9541 9065 8828 7402 | 56136120724774477457517764576157498751776268066801684188983835198821.6188983835198821.61880661.42051.16301.42051.16301.42051.16301.42051.16301.3837381627267367136733812367136733812367136713673381236713 | 8 411 8 594 9974 9040 9970 9117 9103 9064 9380 9579 9860 99860 9904 1. 2442 1. 2356 1. 1931 1. 1547 1. 0542 9883 9390 89740 7407 | - 9099 - 9391 - 9391 - 9391 - 9391 - 9301 - 9162 - 9162 - 91627 - 9162 - | 1. 0666 1. 0853 1. 1504 1. 3966 1. 3890 1. 3662 1. 3622 1. 3622 1. 3622 1. 3644 1. 3431 1. 3431 1. 3431 1. 3431 1. 3452 1. 3654 1. 3274 1. 2726 1. 1949 1. 1010 9900 9192 9900 1. 273 2884 4. 4496 6. 6621 6. 6621 6. 6680 7. 1680 7. 1735 7. 1735 7. 1735 7. 1735 7. 1735 7. 1735 | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1467 -1. 5644 -1. 6147 -1. 6872 -1. 7007 -1. 6373 -1. 3656 -1. 1606 9155 7479 7945 3117 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 1689 1. 1198 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 4304 1. 4408 1. 4033 1. 3473 1. 2715 1. 1655 1. 10599 9911 1. 0096 8. 213 2998 0000 0708 8. 213 | 06/2.05 9610/2.06 9612/2.06 9625 ¹¹ /2.11 | P ML CP ML CP ML CP ML C | . 4555 . 1838 . 5389 . 1978 . 5776 0636 . 7259 | . 5893 | 7208 - 8327 - 8563 - 8696 9478 - 5340 9657 - 7208 - 1,0354 9601 - 1,1349 1,0443 - 6728 9601 - 1 | .66417124 .81957184 .8951 -1.2355 1.1980 -1. | . 5832 - 3392 . 7069 - 3591 . 7721 - 3331 . 8287 - | . 6179 - 5011 . 7556 - 3374 . 8932 . 6435 . 9486 | . 0004. 1686. 0184. 8506. 0004. 0006. | . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | .3301 .6007 .3855 .6188 .4092 .5676 .4681 | 3467 , 5473 , 4075 , 5637 , 4334 , 5080 , 4948 , 3567 3143 4206 , 5003 4478 | . 3728 . 4467 . 4386 . 4418 . 4418 . 3557 . 5434 . |
| 70000 662000 677950 50000 677950 50000 67795 | - 5902 - 6685 - 68823 - 6685 - 68823 - 66852 - 6952 - 6523 - 6852 - 7416 - 7507 - 8295 - 8148 - 9329 - 9448 - 12723 - 1, 3359 - 1, 1752 - 1, 1172 - 2, 1172 | .6440 .6621 .66622 .6648 .6673 .6673 .6673 .6678 .6812 .6986 .6855 .7225 .7224 .7398 .8413 .7098 .8143 .7098 | - , 6019 - , 7002 - , 7124 - , 7220 - , 7321 - , 7228 - , 7287 - , 7448 - , 8864 - , 8865 - , 9825 - 1, 3185 - , 15053 - 1, 5053 - 1, 5053 - 1, 5053 - 1, 5043 - , 9201 - , 4483 - , 8867 - , 9201 - , 4483 - , 8867 - , 1006 - , 10 | .7860 8160 8201 8218 8252 8252 8232 8249 8293 8417 8502 8718 8659 9050 9010 1.0077 1.0689 1.0682 1.0040 9541 9065 8828 7402 2754 9000 0723 2662 4663 5473 5563 5573 5573 5573 5573 5573 5573 55 | 5613612072477441752776457615749875177626806680668418898335119882 -1.6195 -1.5206 -1.1630983716195 -1.5206 -1.163098372671267126712673267126732 | 8 411 8 594 9 9070 9 117 9 103 9 906 4 9067 9 114 9 258 9 380 9 579 9 860 9 990 4 1: 2442 1: 2356 1: 11547 1: 1547 1: 10542 9883 9390 8979 7407 2582 0000 1015 5597 5940 6068 6346 6489 6489 6489 6187 5785 | - 9999 - 9804 - 1.1512 - 1.6278 - 1.678 - 1.5795 - 1.5598 - 1.5704 - 1.5550 - 1.5207 - 1.4849 - 1.5550 - 1.3709 - 1.5070 - 1.4849 - 1.5205 - 1.3709 - 1.5015 - 1.3070 - 1.4811 - 5685 - 5408 - 9944 - 1.0152 - 7481 - 5885 - 5408 - 9944 - 1.0152 | 1.0666 1.0678 1.0853 1.1504 1.3966 1.3890 1.3682 1.3622 1.3644 1.3577 1.3682 1.3644 1.3552 1.3654 1.3752 1.3654 1 | 8247 8370 83864 8864 8857 9308 9628 9990 -1. 0573 -1. 1467 -1. 5644 -1. 6484 -1. 6487 -1. 6373 -1. 3366 9155 -1. 1606 9155 7479 7945 3117 3117 3117 311534 9945 3117 3177 9988 9371 9988 9371 9988 | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0667 1. 0667 1. 0789 1. 1198 1. 3620 1. 1688 1. 3304 1. 3620 1. 4088 1. 3304 1. 3620 1. 4088 1. 3887 1. 4304 1. 4033 1. 2715 1. 1655 1. 0559 9911 1. 0090 8. 213 8. 2298 4007 5273 5340 6431 6654 7015 7340 7401 7163 6729 | 06/2.05 9610/2.06 9612/2.06 9625 ¹¹ /2.11 | P ML CP ML CP ML CP ML C | . 4555 . 1838 . 5389 . 1978 . 5776 0636 . 7259 | . 5893 | 7208 - 8327 - 8563 - 8696 9478 - 5340 9657 - 7208 - 1,0354 9601 - 1,1349 1,0443 - 6728 9601 - 1 | .66417124 .81957184 .8951 -1.2355 1.1980 -1. | . 5832 - 3392 . 7069 - 3591 . 7721 - 3331 . 8287 - | . 6179 5011 . 7556 3374 . 8932 6435 . 9486 3401 5568 4086 5699 . 4310 5937 . 4556 | . 0004. 1686. 0184. 8506. 0004. 0006. | . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | .3301 .6007 .3855 .6188 .4092 .5676 .4681 | 3467 , 5473 , 4075 , 5637 , 4334 , 5080 , 4948 , 3567 3143 4206 , 5003 4478 | . 4667 . 4386 . 4813 . 4681 . 3957 . 5434 . |
| 70000 66000 70950 | - 5902 - 6685 - 6823 - 6902 - 6523 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 1, 2056 - 1, 2723 - 1, 3359 - 1, 3051 - 1, 1172 - 6886 surface - 7247 - 1, 6639 - 1, 6628 - 3319 - 6616 - 3925 - 2500 - 0087 - 1, 1363 - 1, 1472 - 6886 - 1, 2723 - 1, 3951 - 1, 1723 - 1, 1724 - 1, | .6440 .6621 .66622 .66648 .6673 .6673 .6678 .6683 .6718 .6881 .6881 .6881 .7254 .7254 .735 | - 5019 - 7002 - 7124 - 7220 - 7321 - 7287 - 7448 - 7847 - 8114 - 8864 - 88657 - 9838 - 1, 3069 - 1, 1493 - 1, 9093 - 1, 4483 - 8835 - 1, 5053 - 1, 5038 - 1, 5053 - 1, | . 7860 8160 8201 8218 8252 8252 8232 8249 8233 8417 8502 8718 8659 9050 9010 1.0079 1.0682 1.0040 9541 9054 0723 2062 3662 4663 5163 5473 5608 5729 5979 5966 5729 | 56136120724774417527764576157615761576188418898383519882 -1.6418 -1.5206 -1.420398378162726726712671267127 | | - 9999 - 9391 - 9391 - 9391 - 9391 - 16278 - 16178 - 16178 - 15785 - 15598 - 15704 - 15620 - 15207 - 14849 - 15550 - 13709 - 1,5991 - 15950 - 13934 - 1,2270 - 1,0152 - 7481 - 5885 - 5408 - 9944 - 9830 - 1,1292 - 1,0833 - 9119 - 8071 - 3459 - 2154 - 1010 - 0531 - 0355 - 0891 - 0881 - 0018 - 1110 | 1.066F 1.0678 1.0853 1.1506 1.3890 1.3682 1.3577 1.3682 1.3577 1.3682 1.3622 1.3644 1.3552 1.3654 1.3552 1.3654 1.3552 1.3654 1.3726 1.1010 1.3552 1.3654 1.3726 1.3738 1 | 8247 8370 8648 8864 8867 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6647 -1. 5644 -1. 6147 -1. 6872 -1. 7007 -1. 6373 -1. 3566 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1606 -1. 3855 -1. 1006 -1. 3855 -1. 1006 -1. 3855 -1. 1006 -1. 3855 -1. 1006 -1. 3855 - | 1. 0217 1. 0269 1. 0468 1. 0467 1. 0657 1. 0657 1. 1689 1. 1198 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 4304 1. 4408 1. 4033 1. 3473 1. 2715 1. 1655 1. 10599 9911 1. 0096 8. 213 2998 0000 0708 8. 213 | 9606/2.05 9610/2.06 9612/2.06 962511/2.11 | CP ML CP ML CP ML CP ML C | . 1815 . 4555 . 1858 . 5389 . 1978 . 5776 0636 . 7259 | - 1559 - 1563 - 1584 - 2683 - 7809 - 2684 - 2683 - 7809 - 2584 - 2683 - 7809 - 2584 - 2683 - | -, 1683 -, 6896 -, 8327 -, 8563 -, 8696 -, 9478 -, 5340 -, 9657 -, -, 9222 -, 7208 -, 0354 -, 9191 -1, 1349 1, 0443 -, 6728 -, 9601 -, | 6755 .66417124 .81957184 .8951 -1.2355 1.1980 -1. | 3362 .5832 3392 .7069 3591 .7721 3331 .8287 | - 4301 6179 - 5011 7556 - 3374 8932 - 6435 9486 - 5413 3401 5568 4086 5699 4310 5937 4556 | . 5000 . | . 9311 . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 5699 . 3301 . 6007 . 3855 . 6188 . 4092 . 5676 . 4681 . | . 5207 . 3467 . 5473 . 4075 . 5637 . 4334 . 5080 . 4948 | . 4425 . 3728 . 4667 . 4386 . 4681 . 3957 . 5434 . |
| 70000 52000 52000 52000 52000 52000 52000 52000 52000 52000 52000 52000 533475 52950 60000 14000 117000 11500 60000 6000 6000 6000 6000 6000 | - 5902 - 6685 - 6882 - 6685 - 6882 - 6952 - 6952 - 7416 - 7507 - 8295 - 7416 - 7507 - 8295 - 11, 172 - 11, 1535 - 11, 1172 - 11, 1535 - 11, 172 - 11, 1535 - 11, 172 - 11, 1535 - 11, 175 | .6440 .6621 .66622 .6648 .6673 .6673 .6673 .6678 .6812 .6986 .6855 .7225 .7224 .7398 .8413 .7098 .8143 .7098 | - , 6019 - , 7002 - , 7124 - , 7220 - , 7321 - , 7228 - , 7287 - , 7448 - , 8864 - , 8865 - , 9825 - 1, 3185 - , 15053 - 1, 5053 - 1, 5053 - 1, 5053 - 1, 5043 - , 9201 - , 4483 - , 8867 - , 9201 - , 4483 - , 8867 - , 1006 - , 10 | .7860 8160 8201 8218 8252 8252 8232 8249 8293 8417 8502 8718 8659 9050 9010 1.0077 1.0689 1.0682 1.0040 9541 9065 8828 7402 2754 9000 0723 2662 4663 5473 5563 5573 5573 5573 5573 5573 5573 55 | 5613612072477441752776457615749875177626806680668418898383519882 -1.64189882 -1.64189882 -1.6195 -1.5206 -1.4205 -1.163098372671 | | - 9999 - 9391 - | 1. 0666 1. 0678 1. 0678 1. 1596 1. 3966 1. 3890 1. 3577 1. 3682 1. 3622 1. 3644 1. 3431 1. 3386 1. 31552 1. 3654 1. 3726 1. 3727 1. 3726 1. | 8247 8370 8648 8864 8857 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6147 -1. 6373 -1. 1644 -1. 6147 -1. 6857 -1. 317 -1. 8859 -1. 1604 -1. 1193 -1. 1193 -1. 1193 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1 | 1. 0.217 1. 0.269 1. 0.368 1. 0.467 1. 0.657 1. 0.657 1. 0.657 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4308 1. 408 1. 408 | α ⁰ 9606/2.05 9610/2.06 9612/2.06 9625 ¹]/2.11 | CP ML CP ML CP ML CP ML C | . 1815 . 4555 . 1858 . 5389 . 1978 . 5776 0636 . 7259 | - 1559 - 1563 - 1584 - 2683 - 7809 - 2684 - 2683 - 7809 - 2584 - 2683 - 7809 - 2584 - 2683 - | -, 1683 -, 6896 -, 8327 -, 8563 -, 8696 -, 9478 -, 5340 -, 9657 -, -, 9222 -, 7208 -, 0354 -, 9191 -1, 1349 1, 0443 -, 6728 -, 9601 -, | 6755 .66417124 .81957184 .8951 -1.2355 1.1980 -1. | 3362 .5832 3392 .7069 3591 .7721 3331 .8287 | - 4301 6179 - 5011 7556 - 3374 8932 - 6435 9486 - 5413 3401 5568 4086 5699 4310 5937 4556 | . 5000 . | . 9311 . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 5699 . 3301 . 6007 . 3855 . 6188 . 4092 . 5676 . 4681 . | . 5207 . 3467 . 5473 . 4075 . 5637 . 4334 . 5080 . 4948 | . 4425 . 3728 . 4667 . 4386 . 4681 . 3957 . 5434 . |
| 70000 66000 67000 67000 67000 67000 67000 67000 670000 670000 670000 670000 670000 670000 670000 670000 670000 670000 670000 670000 | - 5902 - 6693 - 6683 - 6882 - 6902 - 6523 - 6925 - 7065 - 7416 - 7507 - 8148 - 9329 - 1,3359 - 1,3359 - 1,3051 - 1,152 - 6886 surface - 7247 - 1,6639 - 1,628 - 3319 - 6616 - 3925 - 2009 - 1,1723 - 6886 - 1,1723 - 6886 - 7247 - 1,0639 - 1,0628 - 1,0639 - 1,0628 - 1,0639 - 1 | .6440 .6621 .6622 .6648 .6673 .6673 .6678 .6683 .6718 .6885 .7254 .7842 .7938 .8143 .8073 .7946 .7733 .7650 .6663 .7254 .7842 .7988 .7946 .7733 .7650 .6663 .7946 .7959 | - 5019 - 7002 - 7124 - 7220 - 7321 - 7287 - 7448 - 7847 - 8114 - 8657 - 8864 - 8657 - 9838 - 1309 - 1,5053 - 1,5038 - 1,3093 - 1,4483 - 8485 - 1,3053 - 1,5038 - 1,3093 - 1,4483 - 1,5053 - 1,50 | | 56136120724774417527764576157498751776268066801889838351988264188983152061,206 | 8 411 8 594 9974 9970 9117 9103 9964 9967 9114 9258 9380 9579 9860 9904 1. 2356 1. 1931 1. 1547 1. 1547 1. 0542 9883 3300 8979 7407 2. 2402 4013 5085 5559 6688 6346 6469 6469 6467 5757 5757 5757 5757 5757 | - 9999 - 9991 - 9804 -1.1512 -1.6278 -1.678 -1.5704 -1.5598 -1.5705 -1.5207 -1.5207 -1.3709 -1.3709 -1.3934 -1.2700 -1.3709 -1.3934 -1.270 -1.0152 - 7481 - 98430 -1.1292 -1.80331 -1.3934 -1. | 1.0666 1.0678 1.0853 1.15066 1.3890 1.3662 1.3622 1.3622 1.3622 1.3622 1.3644 1.3431 1.3431 1.3431 1.3452 1.3654 1.3274 1.2726 1.3654 1.3274 1.2726 1.3654 1.3274 1.2726 1.3654 | 8247 8370 8648 8864 8867 9308 9900 -!. 0573 -!. 1. 1675 -!. 3443 -!. 6447 -!. 6872 -!. 7007 -!. 6373 -!. 3855 -!. 1606 9155 7479 7945 3117 | 1. 0.217 1. 0.269 1. 0.468 1. 0.467 1. 0.657 1. 0.657 1. 1689 1. 1198 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 4304 1. 4408 1. 4033 1. 3473 1. 2715 1. 1655 1. 10.599 9.911 1. 0.096 8.213 2998 0000 0708 8.213 2998 0000 7406 7573 7401 740 | α ⁰ 9606/2.05 9610/2.06 9612/2.06 9625 ¹]/2.11 | CP ML CP ML CP ML CP ML C | . 1815 . 4555 . 1858 . 5389 . 1978 . 5776 0636 . 7259 | | -, 1683 -, 6896 -, 8327 -, 8563 -, 8696 -, 9478 -, 5340 -, 9657 -, -, 9222 -, 7208 -, 0354 -, 9191 -1, 1349 1, 0443 -, 6728 -, 9601 -, | 6755 .66417124 .81957184 .8951 -1.2355 1.1980 -1. | 3362 .5832 3392 .7069 3591 .7721 3331 .8287 | - 4301 6179 - 5011 7556 - 3374 8932 - 6435 9486 - 5413 3401 5568 4086 5699 4310 5937 4556 | . 5000 . | . 9311 . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 5699 . 3301 . 6007 . 3855 . 6188 . 4092 . 5676 . 4681 . | . 5207 . 3467 . 5473 . 4075 . 5637 . 4334 . 5080 . 4948 | . 4425 . 3728 . 4667 . 4386 . 4681 . 3957 . 5434 . |
| 75250 65000 65000 57950 53950 65000 45000 53950 65000 | - 5902 - 6685 - 6823 - 6682 - 6902 - 6523 - 6925 - 7065 - 7416 - 7507 - 8295 - 8148 - 1, 2056 - 1, 2723 - 1, 3359 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 3051 - 1, 172 - 1, 10628 - 33519 - 6616 - 3925 - 2009 - 1577 - 1, 263 - 3051 - 1, 172 - 1, 172 - 1, 172 - 1, 173 - 1, | .6440 .6621 .66622 .66648 .6673 .6673 .6678 .6883 .6710 .6788 .6812 .6986 .6855 .7225 .7254 .7842 .7898 .8143 .8073 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .7333 .7946 .794 | - 5019 - 7002 - 7124 - 7220 - 7321 - 7321 - 7287 - 7448 - 7847 - 8114 - 8864 - 88657 - 9838 - 9825 - 1. 3185 - 1. 5038 - 1. 5038 - 1. 5038 - 1. 5048 - 1. 3069 - 1. 4483 - 84857 - 94858 - 9825 - 1. 5053 - 1. 5038 - 1. 5038 - 1. 5038 - 1. 5038 - 1. 5038 - 1. 5053 - 1. 5038 - 1. | . 7860 8160 8201 8218 8252 8252 8249 8293 8417 8502 9010 1.0689 1.0689 1.0689 1.0682 1.0040 0.0723 2.062 3.662 4.663 5.1 | 5613612072477441752776457615749875177626806680668418898383519882 -1.64189882 -1.64189882 -1.6195 -1.5206 -1.4205 -1.163098372671 | | - 9999 - 9391 - | 1. 0666 1. 0678 1. 0678 1. 1596 1. 3966 1. 3890 1. 3577 1. 3682 1. 3622 1. 3644 1. 3431 1. 3386 1. 31552 1. 3654 1. 3726 1. 3727 1. 3726 1. | 8247 8370 8648 8864 8867 9308 9900 -1. 0573 -1. 1675 -1. 3443 -1. 6147 -1. 6373 -1. 1644 -1. 6147 -1. 6857 -1. 317 -1. 8859 -1. 1604 -1. 1193 -1. 1193 -1. 1193 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1. 1006 -1. 1195 -1 | 1. 0.217 1. 0.269 1. 0.368 1. 0.467 1. 0.657 1. 0.657 1. 0.657 1. 1191 1. 1688 1. 2398 1. 3104 1. 3620 1. 4088 1. 3887 1. 4308 1. 408 1. 408 | α ⁰ 9606/2.05 9610/2.06 9612/2.06 9625 ¹]/2.11 | CP ML CP ML CP ML CP ML C | . 1615 . 4555 . 1858 . 5389 . 1978 . 5776 0636 . 7259 | | -, 1633 . 6896 -, 8327 . 8563 -, 8696 . 9478 -, 5340 . 9657, 9222 . 7208 -, 0354 . 9191 -1, 1349 1, 0443 -, 6728 . 9601 | .66417124 .81957184 .8951 -1.2355 1.1980 -1. | 3362 .5832 3392 .7069 3591 .7721 3331 .8287 | - 4301 6179 - 5011 7556 - 3374 8932 - 6435 9486 - 5413 3401 5568 4086 5699 4310 5937 4556 | . 5000 . | . 9311 . 1681 . 9633 . 1933 . 9852 . 2005 . 9669 . 2428 | . 5699 . 3301 . 6007 . 3855 . 6188 . 4092 . 5676 . 4681 . | . 5207 . 3467 . 5473 . 4075 . 5637 . 4334 . 5080 . 4948 | 3728 .4667 .4386 .4613 .4681 .3957 .5434 |

¹⁾ Solid test section walls. 2) See Table 5.7 for test conditions and aerodynamic coefficients

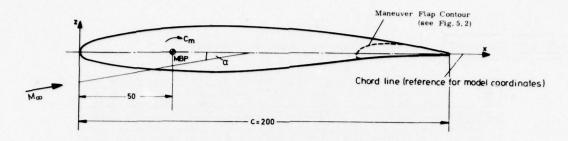
Table 5.9 Concluded

b. Top and bottom wall pressures

| Run | 9617 | 9617 | 9618 | 9621 | 9621 | 9606 | 9610 | 9612 | 96251) | 96251) |
|--------------------|------------|--------------|--------------|--------------------|--------------|--------------|------------------|-------------|--------------|--------|
| M _{co} | 0.703 | 0.703 | 0.702 | 0.760 | 0.761 | 0.499 | 0.600 | 0.649 | 0.702 | 0.702 |
| X (m) 2) | 4.08 CP | 2.07 CP | 6.03 | 2.05 | 4.07 | 2.05 | 2,06 | 2.06 | 2.11 | 4,06 |
| Top wall | CP | CP | CP | CP | CP | CP | CP | CP | CP | CP |
| .73000 | 0720 | 0315 | 0909 | 0454 | 0635 | 0269 | 0177 | 0244 | .0667 | .047 |
| .6 3000 | 1090 | 0764 | 1870 | 0897 | 1078 | 0608 | 0615 | 0638 | 0306 | 0560 |
| . 58 500 | 1172 | 0850 | 1470 | 0980 | 1181 | 0734 | 0693 | 0760 | 0351 | -, 058 |
| . 54500 | 1301 | 0906 | 1468 | 1025 | 1204 | 08 26 | 0747 | 0781 | 0542 | 079 |
| . 45500 | 1366 | 0971 | 1594 | 1140 | 1330 | 0801 | 08 28 | 0896 | 0901 | 1095 |
| . 40500 | 1369 | 0933 | 1620 | 1097 | 1303 | 9818 | 0806 | 0862 | 1061 | 1293 |
| . 29000 | 1416 | 1025 | 1697 | 1166 | 1385 | 0878 | 0835 | 0893 | 1528 | 1778 |
| . 25000 | 1473 | 1089 | 1710 | 1247 | 1442 | 0888 | 0915 | 0933 | 1902 | 2186 |
| . 20000 | 1558 | 1157 | 1792 | 1336 | 1563 | 0948 | 0969 | 1023 | 2419 | 2676 |
| . 15000 | 1466 | 1113 | 1717 | 1300 | 1507 | 0914 | 0922 | 1001 | 2936 | 3159 |
| . 13000 | 1453 | 1095 | 1738 | 1313 | 1517 | 0919 | 0931 | 0968 | 3202 | 343 |
| . 11000 | 1496 | 1122 | 1701 | 1353 | 1552 | 0870 | 0904 | 0969 | 3534 | 3737 |
| . 09000 | 1584 | 1186 | 1815 | 1461 | 1727 | 0941 | 0984 | 1036 | 3892 | 409 |
| . 07000 | 1623 | 1201 | 1855 | 1508 | 1763 | 0936 | 0996 | 1028 | 4123 | 4253 |
| . 05000 | 1660 | 1194 | 1877 | 1537 | 1831 | 0890 | 0945 | 0989 | 4493 | 4608 |
| . 03000 | 1732 | 1219 | 1997 | 1574 | 1886 | 0912 | 0986 | 1030 | 4881 | 490 |
| .01000 | 1648 | 1166 | 1850 | 1453 | 1747 | 0799 | 0882 | 0965 | 4936 | 5093 |
| 01000 | 1648 | 1144 | 1816 | 1425 | 1683 | 0817 | 0880 | 0950 | 50 26 | 506 |
| 03000 | 1620 | 1118 | 1805 | 1852 | 1586 | 08 40 | ~. 0869 | 0940 | 4779 | 479 |
| 05000 07000 | 15.5 | 1050 1007 | 1722 | -, 1218 -, 1077 | 1428 | 0761 | ~.0818 | 0881 | 4471 | 442 |
| 09000 | 1440 | 0948 | 1628 1475 | 0960 | 1269 1089 | 0758 0722 | ~. 0796 | 0869 | 4114 | 411 |
| 11000 | 1076 | 0760 | 1217 | 0708 | 0799 | 0691 | ~.0780 ~.0637 | 0811 688 | 3690 3173 | 369 |
| 13000 | 0914 | 0659 | 1038 | 0582 | 0596 | 0560 | 0566 | 0597 | 28 22 | 279 |
| 15000 | 0447 | 0574 | 0896 | 0419 | 0457 | 0548 | 0544 | 0557 | 2531 | 258 |
| 20000 | 0451 | 0323 | 0449 | 0057 | 0051 | 0488 | 0362 | 0342 | 1865 | 181 |
| 25000 | 0184 | 0071 | 0075 | .0219 | . 0 28 1 | 0242 | ~.0180 | 0145 | 1349 | 130 |
| 29000 | .0089 | 0082 | . 0140 | . 394 | . 0457 | 0179 | 0086 | 0012 | 1105 | 102 |
| 34000 | .0236 | . 0 208 | .0272 | . 462 | .0548 | 0081 | .0013 | . 0083 | 0664 | 064 |
| 44000 | .0249 | .0168 | . 0325 | . 0419 | .0489 | 0066 | .0025 | .0070 | 0470 | 042 |
| 54000 | .0331 | .0229 | . 0395 | . 0430 | .0497 | .0025 | .0073 | .0133 | 0216 | 020 |
| 64000 | .0338 | . 0818 | .0447 | . 0463 | .0532 | .0074 | .0184 | .0234 | 0030 | 002 |
| 83000 | .0191 | . 01 28 | . 0204 | .0212 | .0255 | .0021 | . 0084 | . 0085 | .0015 | .005 |
| -1.2300 | .0169 | .0165 | .0172 | .0205 | .0200 | . 0148 | .0170 | .0179 | .0121 | .010 |
| Bottom wa | | | | | | | | | | |
| -1.79000 | .0327 | . 03 29 | . 0369 | . 0415 | .0422 | .0294 | .0330 | . 0338 | .0160 | .013 |
| -1.49000 | .0197 | .0189 | .0194 | . 0211 | .0220 | . 0143 | .0137 | . 0129 | .0089 | .012 |
| -1.14000 | .0112 | .0124 | . 0121 | . 0143 | .0132 | . 0098 | .0116 | .0133 | .0060 | .004 |
| 64000 | .0546 | .0389 | . 0611 | .0533 | .0618 | . 0235 | .0267 | . 0306 | .0211 | .019 |
| 54000 49000 | .0741 | .0564 | . 08 45 | .0742 | . 0837 | .0316 | .0437 | .0470 | .0314 | .033 |
| 39000 | .0790 | .0810 | | . 0968 | . 0869 | .0336 | .0425 | .0497 | . 0321 | .030 |
| 34000 | .1071 | .0945 | . 1148 | . 1139 | .1130 | .0489 | .0622 | .0672 | .0477 | .036 |
| 25000 | .1222 | .1147 | . 1617 | . 1336 | .1528 | .0575 | .0926 | .0845 | .0745 | .075 |
| 20000 | .1640 | . 1299 | . 1788 | . 1463 | .1654 | . 0891 | . 1070 | . 1161 | .0836 | .072 |
| 15000 | | . 1427 | . 1546 | . 1611 | . 1804 | . 1099 | .1234 | .1291 | .0952 | .086 |
| 13000 | | . 1280 | .1714 | .1469 | .1640 | . 0905 | .1065 | .1145 | .0789 | .069 |
| 11000 | | . 1431 | . 1907 | . 1583 | .1781 | . 1038 | .1189 | .1277 | .0873 | .076 |
| 09000 | | . 1480 | . 1964 | . 1669 | . 1838 | .1109 | . 1218 | . 1343 | .0899 | .079 |
| 07000 | . 18 40 | . 1439 | . 1866 | . 1598 | . 1771 | . 1025 | .1216 | . 1327 | .0871 | .067 |
| 05000 | | . 1705 | . 21 29 | . 1852 | . 1988 | .1274 | . 1433 | . 1557 | . 1091 | .089 |
| 03000 | | . 1457 | . 1948 | . 1623 | .1780 | . 1084 | . 1251 | . 1380 | . 0839 | . 059 |
| 01000 | | . 1499 | . 1963 | . 1680 | . 1788 | .1144 | . 1294 | . 1386 | . 0862 | .058 |
| .01000 | | . 1501 | . 1867 | . 1657 | . 1746 | .1118 | . 1290 | . 1370 | .0813 | .058 |
| .03000 | | . 1484 | . 1834 | . 1618 | . 1698 | .1072 | . 1267 | . 1387 | .0802 | .052 |
| . Q5000 | . 1881 | . 1536 | . 1853 | . 1695 | . 1767 | .1154 | . 1306 | . 1421 | . 08 44 | .055 |
| .07000 | .1673 | . 1342 | 1642 | . 1519 | . 1531 | . 1021 | . 1147 | . 1252 | .0651 | . 034 |
| .09000 | | . 1439 | . 1664 | . 1586 | . 1629 | .1092 | . 1253 | . 1374 | .0660 | .036 |
| . 11000 | | . 1373 | . 1512 | . 1487 | .1510 | . 1007 | . 1159 | . 1256 | .0605 | .025 |
| . 13000 | | . 1343 | . 1533 | . 1473 | . 1485 | . 1020 | .1162 | . 1240 | . 0603 | .027 |
| . 15000 | .1614 | . 1337 | . 1539 | . 1469 | . 1458 | .1002 | . 1208 | . 1267 | .0587 | . 026 |
| . 20000 | . 1395 | . 1195 | . 1 28 4 | . 1322 | . 1 26 2 | . 0943 | . 1064 | . 1143 | .0448 | . 009 |
| . 25000 | .1164 | . 1039 | . 1009 | . 1125 | .1013 | . 08 28 | . 0878 | .0962 | . 0308 | .001 |
| . 35000 | .0719 | .0691 | .0593 | .0773 | . 0624 | . 0547 | .0615 | . 0645 | .0077 | 025 |
| . 39000 | .0503 | .0515 | . 0351 | . 0572 | .0427 | .0451 | .0487 | .0508 | 0057 | 037 |
| . 49000 | . 0 20 1 | .0238 | .0022 | . 0202 | . 0149 | . 0283 | .0302 | . 0338 | 0174 | 040 |
| . 57000 | 0183 | 0096 | 0421 | 0189 | 0280 | .0038 | .0023 | 0009 | 0320 | 056 |
| . 62000 . 72000 | .0070 | .0132 | 0175 | .0056 | 0037 | . 0286 | .0253 | .0212 | .0014 | 024 |
| | | . 1379 | . 1127 | .1392 | .1392 | . 1261 | . 1319 | . 1346 | . 1063 | .090 |

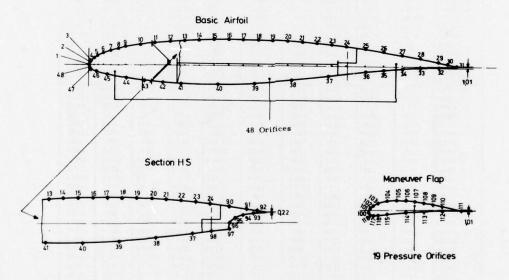
¹⁾ Solid test section walls

²⁾ The leading edge of the model is located 0.107 m upstream of $x\,\approx\,0$ for the wall pressure orifices

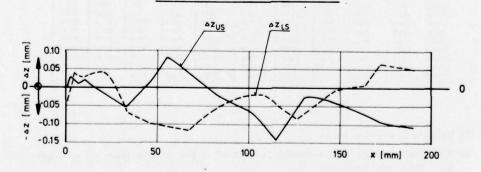


 $\frac{\text{Geometric data:}}{\text{t}_{TE}/\text{c}} = 0.5\% \quad \text{Maneuver flap chord} \quad c_{K} = 50 \text{ mm} \quad \text{All dimensions given are in millimeters} \quad \text{Trailing edge thickness}$

a. Airfoil contour (also see Table 5.1)

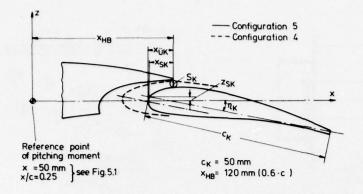


b. Location of pressure orifices (also see Table 5.3)



c. Measured errors of manufactured airfoil (also see Table 5.2)

Figure 5.1 Airfoil SKF 1.1 - Contour and location of pressure orifices



| Configuration | η_{K}^{o} | s _K | *ÜK | *SK | z _{SK} |
|---------------|----------------|----------------|------|---------|-----------------|
| | | % с | % с | mm | mm |
| 1 | 2 | 0.05 | 9.05 | - 17.90 | 0.40 |
| 2 | 5 | 0.05 | 8.33 | - 15.70 | 1.10 |
| 3 | 5 | 1.65 | 4.00 | - 7.00 | - 1.60 |
| 4 | 10 | 0.05 | 6.93 | - 13.60 | 2.00 |
| 5 | 10 | 1.55 | 3.48 | - 6.70 | 0.70 |
| 6 | 15 | 1.55 | 3.45 | - 6.40 | 0.00 |

Only data for these configurations are included. At ONERA only **C**onfiguration 5 in addition to the basic airfoil was tested.

Figure 5.2 Flap configurations investigated

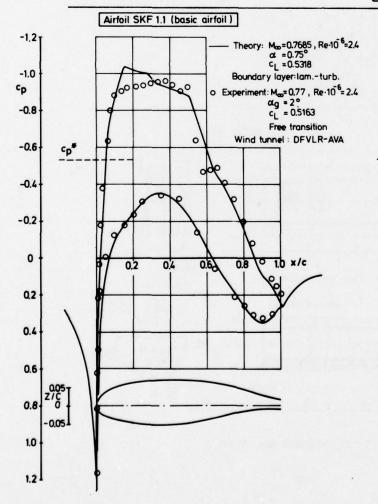
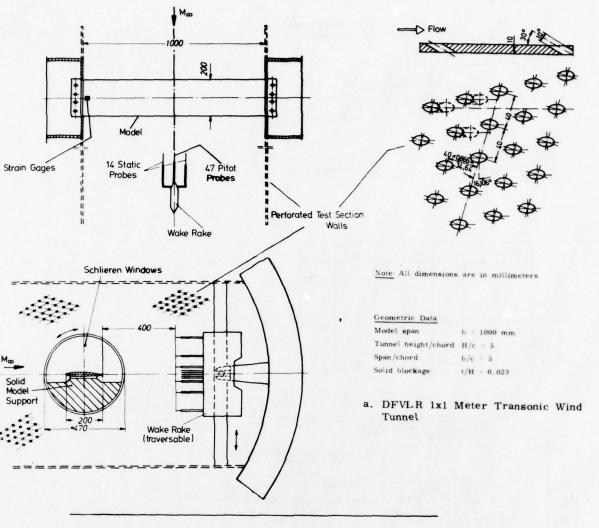
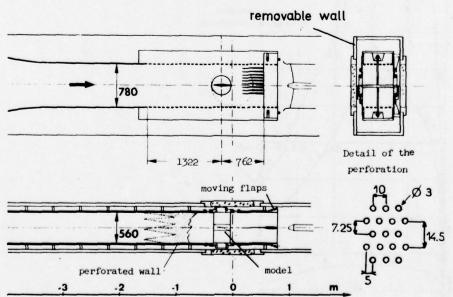


Figure 5.3 Design pressure distribution

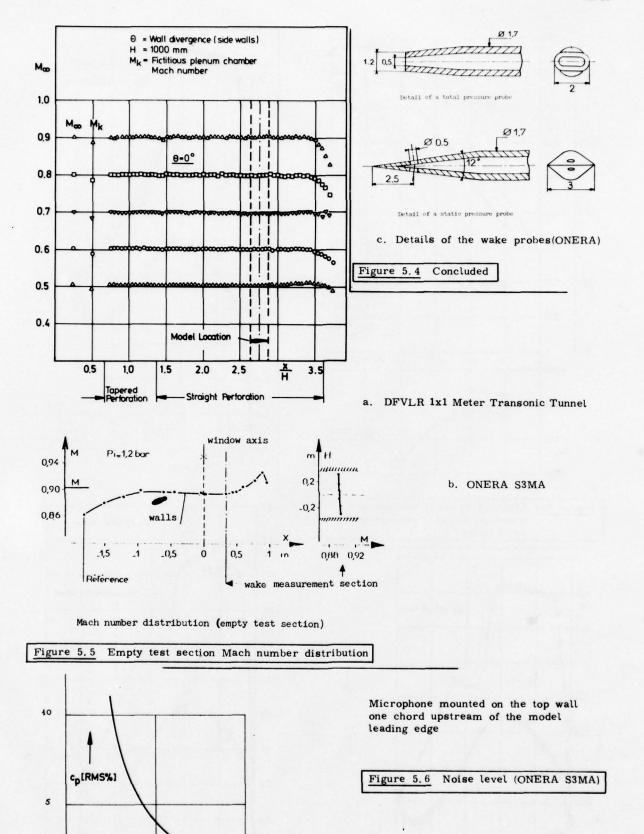




MODEL INSTALLATION IN THE $\mathbf{S_3}^{\text{MA}}$ TRANSONIC WIND TUNNEL

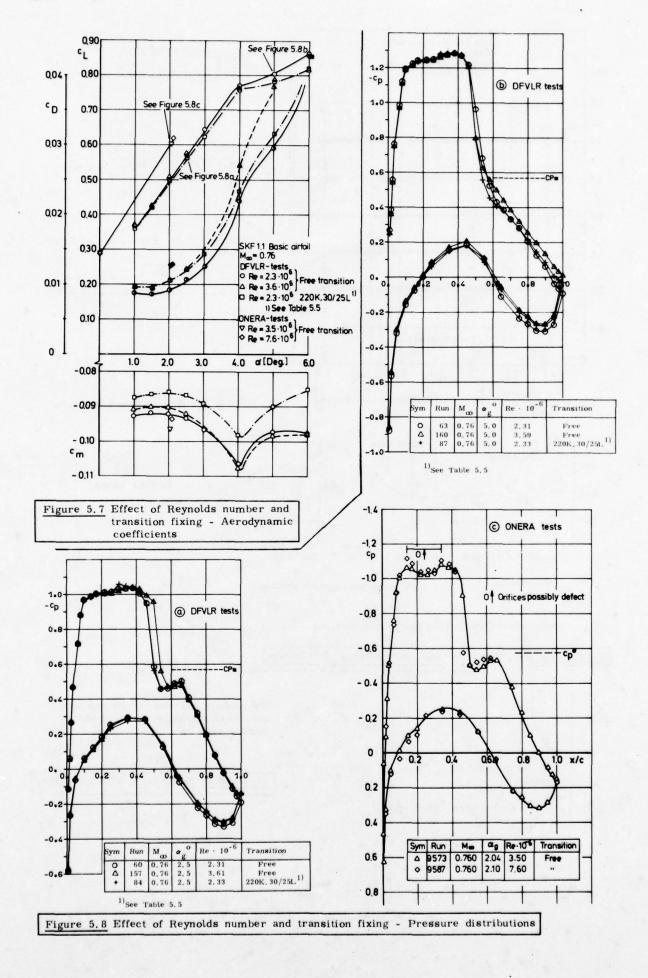
b. ONERA S3MA

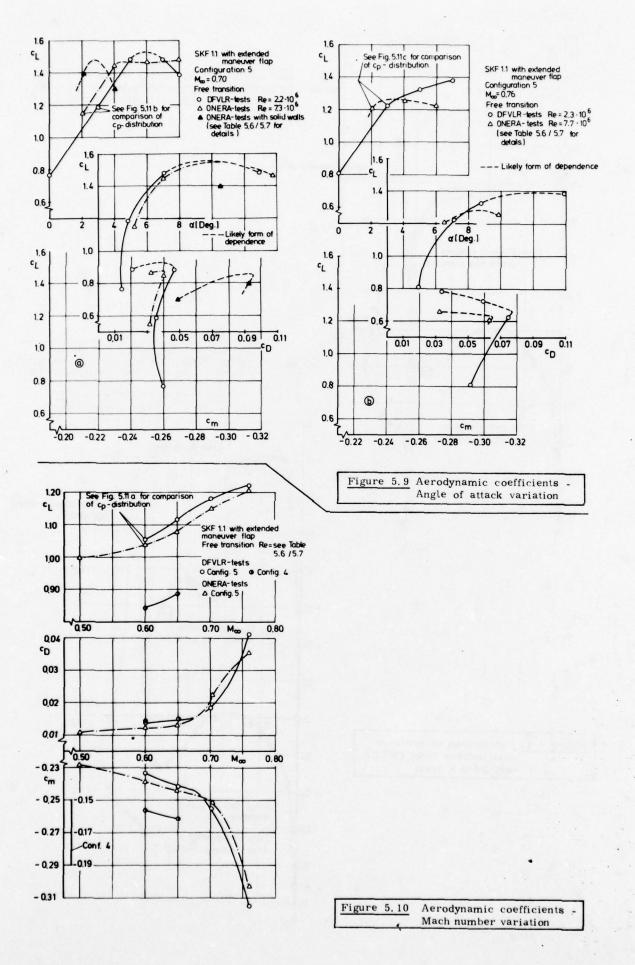
Figure 5.4 Test set-up



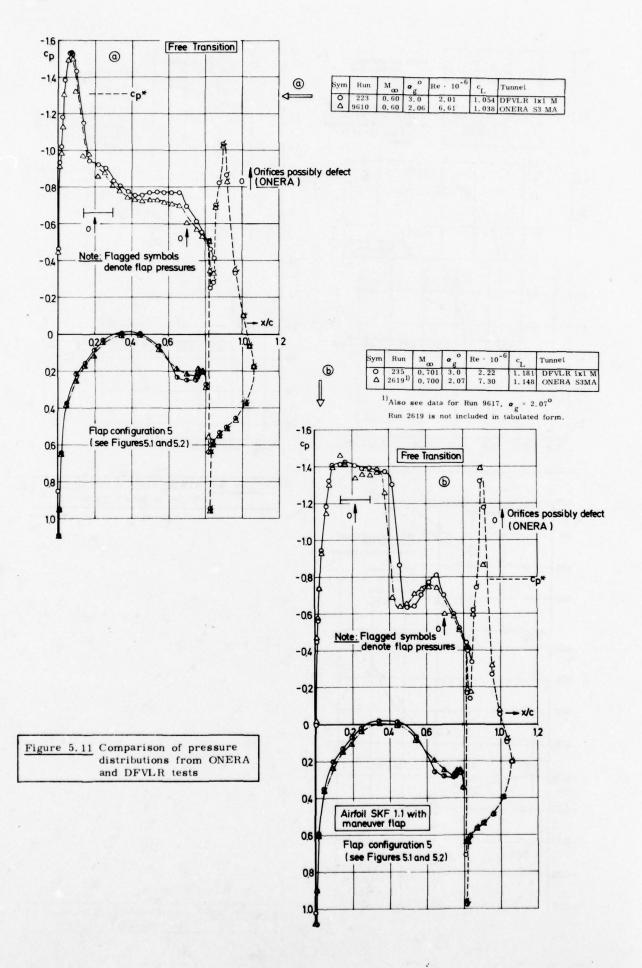
0.5

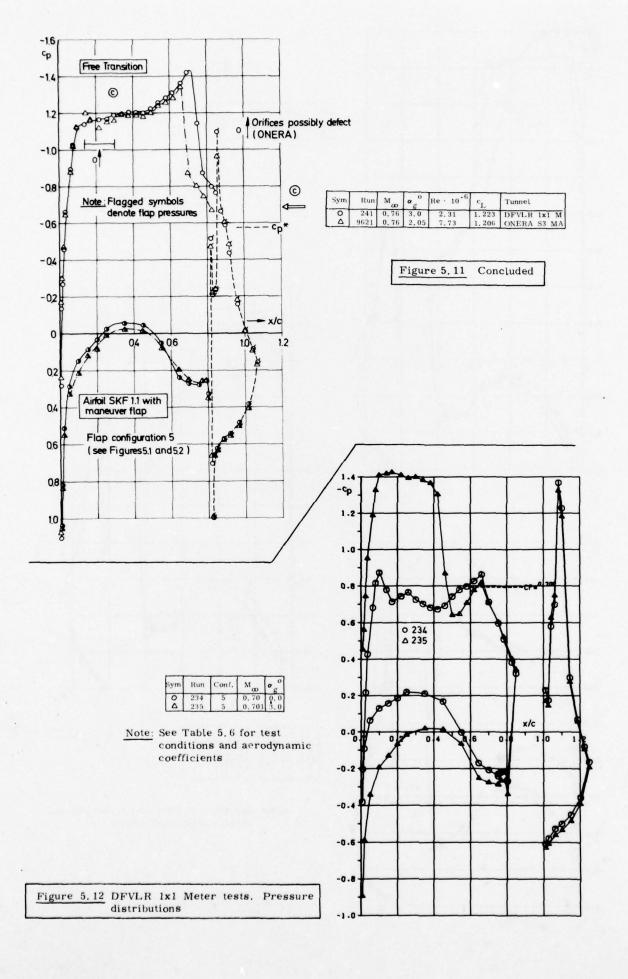
1.0





The state of the s





-cp

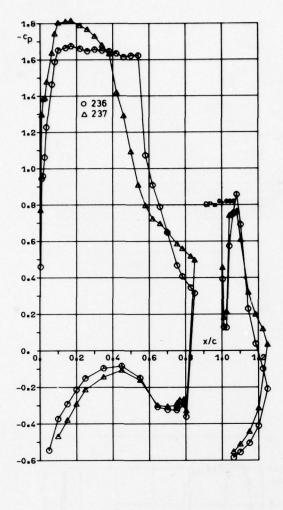
1.2

0.8

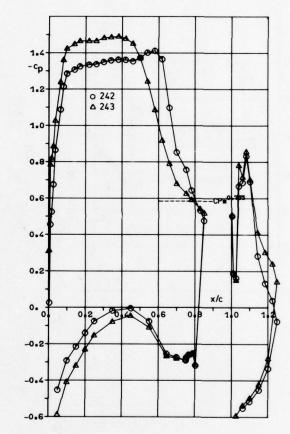
0.2

0.

O 240 Δ 241



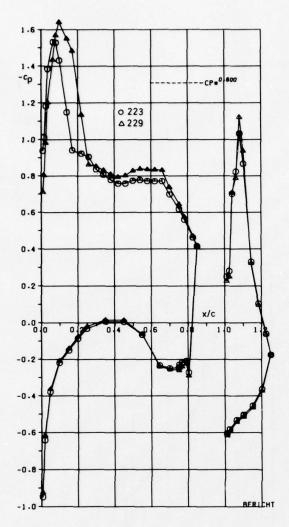
| Sym | Run | Conf. | M _{co} | a o |
|-----|-----|-------|-----------------|-----|
| 0 | 236 | 5 | 0.70 | 5,0 |
| Δ | 237 | 5 | 0.70 | 7.0 |



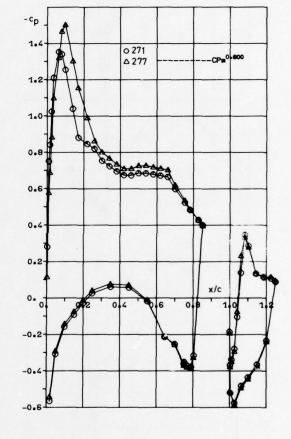
| Sym | Run | Conf. | M _∞ | o o |
|-----|-----|-------|----------------|-----|
| 0 | 240 | 5 | 0.76 | 0.0 |
| Δ | 241 | | 0,76 | 3.0 |
| 0 | 242 | | 0.759 | 5.0 |
| Δ | 243 | 5 | 0.761 | 7.0 |

Note: See Table 5.6 for test conditions and aerodynamic coefficients

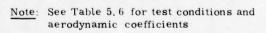
Figure 5.12 Continued



| Sym | Run | Conf. | M _{co} | a o |
|-----|-----|-------|-----------------|-----|
| 0 | 223 | 5 | 0.60 | 3.0 |
| Δ | 229 | 5 | 0.65 | 3.0 |



| Sym | Run | Conf. | M _∞ | a o |
|-----|-----|-------|----------------|-----|
| 0 | 271 | 4 | 0.60 | 3.0 |
| Δ | 277 | 4 | 0.65 | 3.0 |
| 0 | 230 | 5 | 0.65 | 6.0 |
| Δ | 278 | 4 | 0.65 | 6.0 |



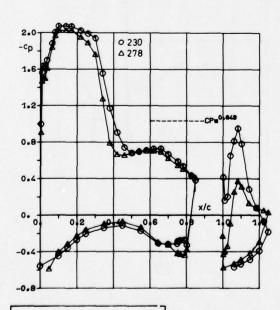
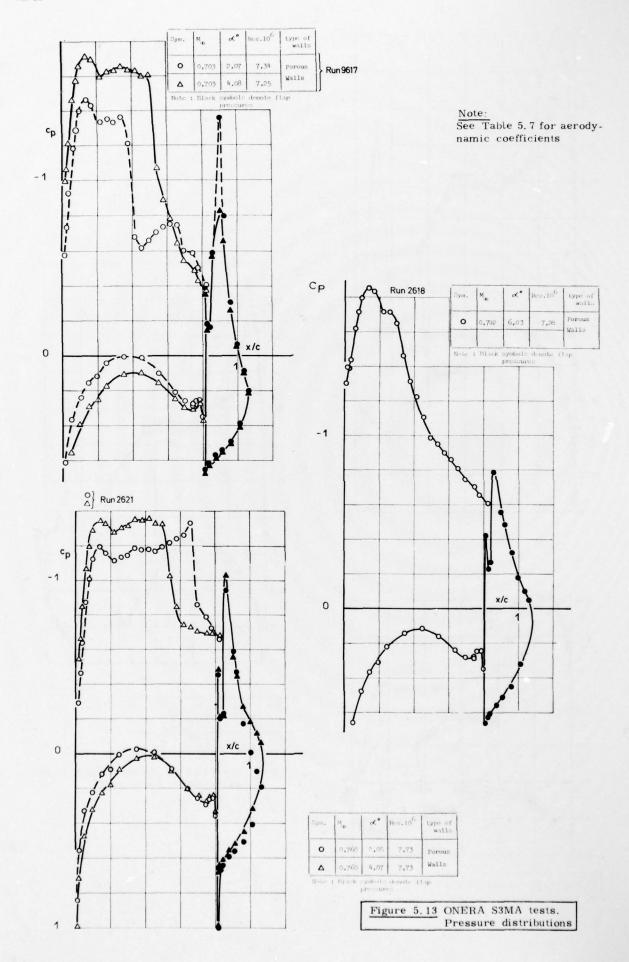
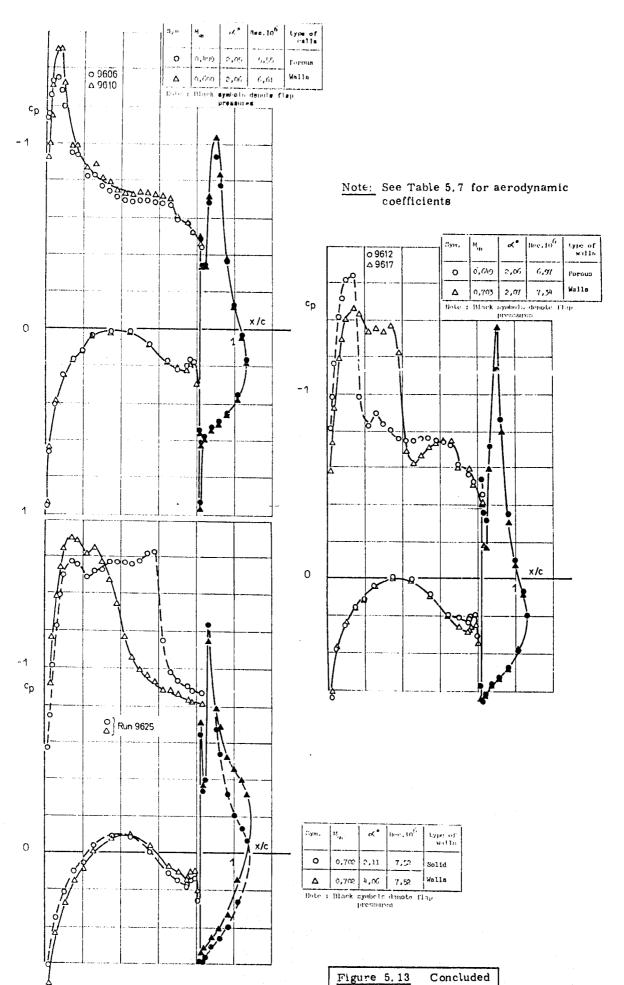


Figure 5.12 Concluded



Wild Time



And the second s

6. AEROFOIL RAE 2822 - PRESSURE DISTRIBUTIONS, AND BOUNDARY LAYER AND WAKE MEASUREMENTS

by

P. H. Cook, M. A. McDonald and M. C. P. Firmin

Royal Aircraft Establishment, Farnborough, Hants, United Kingdom

INTRODUCTION

The examples presented have been selected to give a range of conditions from wholly subcritical flow to conditions where a comparatively strong shock wave exists in the flow above the upper surface of the aerofoil. In at least one example some boundary layer separation occurs due to the shock wave but reattachment occurs ahead of the trailing edge of the aerofoil.

The data include surface pressure measurements and mean flow boundary layer and wake profiles deduced from traverses of pitot and static pressure measuring probes. Where the measurements have been made close to the aerofoil (ie x/c \leq 1.025) the probes have been mounted from within the model, thus keeping the probe support interference to a minimum.

In all examples presented, attempts have been made to fix boundary-layer transition near to the leading edge of the aerofoil (x/c = 0.03 or x/c = 0.11), but as the measurements were made for a range of Reynolds numbers and Mach numbers, in some cases without changing the transition trip, the roughness size may be larger than would normally be used at the higher Reynolds numbers. In some examples the presence of the roughness has clearly had a strong local effect on the pressure distribution. The local disturbance to the boundary layers has not been measured but the downstream developments, of course, include the influence of the trip.

In parts of the flow the normal boundary-layer assumptions are violated by the normal pressure gradients which are significant near the trailing edge of the aerofoil and in the region of a shock wave. Ideally it is necessary to take account of the normal pressure gradients in defining the boundary layer integral parameters and in one example the data are presented with and without allowance for the normal pressure gradients (Case 9 - configurations Cl and C2 respectively). Where boundary layers are measured downstream of a shock wave the total pressure measured by the pitot tube is affected by the total head loss due to the shock wave. However the edge of the boundary layer was usually well defined. For traverses made in the near wake the measurements have been treated as two separate boundary layers, without extrapolation to a surface but with the division between the two parts taken at the point of minimum velocity ratio. Examples are given of traverses made well behind the trailing edge of the aerofoil the purpose of which has been to determine the total drag. Consequently the traverse has included as far as possible the complete region behind the shock wave as well as the viscous wake. The definition of momentum thickness is then different from that used for the boundary layers where shock losses outside the viscous layer are excluded.

In the data reduction it has been assumed that the flow is two-dimensional, and so the surface pressure distribution measured near the centre section of the aerofoil (see Fig 6.4) has been used in nearly all cases as the value of the static pressure at the aerofoil surface for determining the velocity profiles and any variation of the static pressure within a profile is only taken into account if actual measurements exist. The variation of the static pressure through the boundary layer and/or wake has normally been obtained from a traverse at one spanwise station and used at others. Although for the main part of the data this assumption is satisfactory, there are cases, for instance when the boundary layer is close to separation, where a significant difference may exist. The data presented in the tables have as far as possible been presented so that re-analysis is possible by the reader.

BOUNDARY LAYER AND WAKE ANALYSIS

2.1 Measured profiles

The local Mach number (M_L) , within the boundary layer or wake, has been obtained from values of total pressure (P_0) and static pressure (P_L) at the measurement point from the equation

$$M_{L} = \sqrt{5} \left\{ \left(\frac{P_{L}}{P_{0}} \right)^{-2/7} - 1 \right\}^{\frac{1}{2}} . \tag{1}$$

When $M_L \lesssim 1$ then $P_0 = P_{0_M}$, the measured value of the pitot pressure, and M_L can be obtained directly. When $M_L > 1$ then $P_0 \neq P_{0_M}$ and is given by

$$\frac{P_{0_{M}}}{P_{0}} = \left(\frac{6M_{L}^{2}}{M_{L}^{2} + 5}\right)^{7/2} \left(\frac{6}{7M_{L}^{2} - 1}\right)^{5/2} . \tag{2}$$

Thus for $M_L > 1$ equations (1) and (2) were solved by iteration. Where the variation of static pressure has not been measured at the appropriate x/c location, the static pressure is assumed to be constant through the layer. The static pressure used in determining the local conditions is quoted for each point or profile as appropriate.

In regions of the flow where the static pressure varies significantly across the boundary layer, such as the trailing edge region, the velocity ratio ($\mathrm{u/U_p}$) has been defined by assuming that the total temperature is constant throughout the flow and that the reference velocity can be determined from the local static pressure and the total pressure at the edge of the boundary layer. When the static pressure is taken as constant through the layer the same assumptions apply except that the local static pressure is taken to be the value measured at the surface. Thus the quantities measured in the boundary layer are referred to a fictitious flow which has the same static pressure distribution as measured, but a constant total pressure equal to that at the edge of the boundary layer. With these assumptions we get;

$$\frac{u}{U_{\rm P}} = \frac{M_{\rm L}}{M_{\rm P}} \left(\frac{1 + 0.2 M_{\rm P}^2}{1 + 0.2 M_{\rm L}^2} \right)^{\frac{1}{2}}$$
(3)

and

$$\frac{\rho u}{\rho_p U_p} = \frac{M_L}{M_p} \left(\frac{1 + 0.2 M_L^2}{1 + 0.2 M_p^2} \right)^{\frac{1}{2}}$$
(4)

where

$$M_{p} = \sqrt{5} \left\{ \frac{(1 + 0.2M_{\infty}^{2})}{(1 + 0.7M_{\infty}^{2}(c_{p})_{p})^{2/7}} - 1 \right\}^{\frac{1}{2}}$$
 (5)

and M_{∞} is the Mach number of the undisturbed stream and $(C_{p})_{p}$ is the coefficient of static pressure.

2.2 Calculation of boundary layer integral quantities

The definitions of the displacement and momentum thicknesses, for compressible flow, are usually taken as

$$\delta^* = \int_0^{\delta} \left(1 - \frac{\rho u}{\rho_{\delta} U_{\delta}} \right) dz \tag{6}$$

and

$$\theta = \int_{0}^{\delta} \frac{\rho u}{\rho_{\delta} U_{\delta}} \left(1 - \frac{u}{U_{\delta}} \right) dz$$
 (7)

when the usual boundary layer assumptions are made. However, near the trailing edge of an aerofoil, if account is to be taken of the change in static pressure across the layer when determining the decrement in mass or momentum flux through the boundary layer then the definitions need modification. In the data presented here the following definitions are used,

$$\int_{0}^{\star} \rho_{p} U_{p} dz = \int_{0}^{\delta} \rho_{p} U_{p} \left(1 - \frac{\rho_{u}}{\rho_{p} U_{p}} \right) dz$$
(8)

and

$$\int_{0}^{\theta} \rho_{p} U_{p}^{2} dz = \int_{0}^{\delta} \rho_{p} U_{p}^{2} \frac{\rho u}{\rho_{p} U_{p}} \left(1 - \frac{u}{U_{p}} \right) dz$$
(9)

which differ slightly from those recommended by Myring 1 for use in making comparisons with calculations. The main difference is that Myring takes the reference density and velocity as those for the equivalent inviscid flow for $z \geqslant \delta^*$ with constant values for $0 \leqslant z \leqslant \delta^*$, whereas we use as reference the density and velocity of a fictitious flow defined by the total pressure at the edge of the boundary layer and the measured local static pressure across the layer as noted above. Also the definition for momentum thickness is different*. The value obtained with Myring's definition, but with the reference quantities used here, may be up to 4% greater near the trailing edge than the values quoted. For the displacement thickness the two definitions are equivalent.

For convenience, values of $\rho_p U_p$ and $\rho_p U_p^2$ were obtained as ratios to their values at the wall or near the centre of the wake (*ie* point of lowest total pressure). The values of ρ_p , U_p , M_p , $(C_p)_p$ at the wall or centre of the wake are termed respectively ρ_W , U_W , M_W , $(C_p)_W$. Thus

^{*} A reassessment of Myring's proposals is given by Zwaaneveld2.

$$\frac{\rho_{\mathbf{p}} U_{\mathbf{p}}}{\rho_{\mathbf{W}} U_{\mathbf{W}}} = \frac{M_{\mathbf{p}}}{M_{\mathbf{W}}} \left(\frac{1 + 0.2 M_{\mathbf{p}}^2}{1 + 0.2 M_{\mathbf{W}}^2} \right)^{\frac{1}{2}} \left(\frac{1 + 0.7 (C_{\mathbf{p}})_{\mathbf{p}} M_{\infty}^2}{1 + 0.7 (C_{\mathbf{p}})_{\mathbf{W}} M_{\infty}^2} \right)$$
(10)

and

$$\frac{\rho_{p}U_{p}^{2}}{\rho_{W}U_{W}^{2}} = \left(\frac{M_{p}}{M_{W}}\right)^{2} \left(\frac{1 + 0.7(C_{p})_{p}M_{\infty}^{2}}{1 + 0.7(C_{p})_{W}M_{\infty}^{2}}\right). \tag{11}$$

The experimental values for δ^* and θ were then obtained by numerical integration of Eq.(8) and (9) using Eq.(10) and (11). As described in the next section analytic expressions were used to extend the profiles to the wall from the measured point nearest to the wall.

2.3 Extrapolation of the measured profiles to the surface

The extrapolation is based on the logarithmic form of the velocity profiles given by Winter and $Gaudet^3$ and the corresponding equation for the viscous sublayer,

$$\frac{\mathbf{u}}{\mathbf{u}_{\tau}^{\mathbf{i}}} = 6.05 \log_{10} \left(\frac{\mathbf{z} \mathbf{u}_{\tau}^{\mathbf{i}}}{v_{\delta}} \right) + 4.05 \tag{12}$$

and

$$\frac{\mathbf{u}}{\mathbf{u}_{\tau}^{\mathbf{i}}} = \frac{z\mathbf{u}_{\tau}^{\mathbf{i}}}{v_{\delta}} . \tag{13}$$

These equations are modified slightly, so that they are written in terms of the local skin friction coefficient, and in terms of quantities measured in the experiments as follows

$$\frac{u}{U_{p}} = \frac{U_{W}}{U_{p}} \left[\frac{C_{f}}{2} \left(1 + 0.2 M_{W}^{2} \right)^{\frac{1}{2}} \right]^{\frac{1}{2}} \left[6.05 \log_{10} \left\{ \text{Re}_{W} \frac{z}{c} \left[\frac{C_{f}}{2} \left(1 + 0.2 M_{W}^{2} \right)^{\frac{1}{2}} \right]^{\frac{1}{2}} \right\} + 4.05 \right]$$

$$(14)$$

and

$$\frac{u}{U_{p}} = \frac{U_{W}}{U_{p}} \operatorname{Re}_{W} \frac{z}{c} \frac{C_{f}}{2} (1 + 0.2M_{W}^{2})^{\frac{1}{2}}$$
(15)

where

$$\frac{\text{Re}_{W}}{\text{Re}} = \frac{M_{W}}{M_{\infty}} \left\{ \frac{(1 + 0.2M_{\infty}^{2})}{(1 + 0.2M_{W}^{2})} \right\}^{5/2} \left\{ \frac{T_{0} + 117(1 + 0.2M_{W}^{2})}{T_{0} + 117(1 + 0.2M_{\infty}^{2})} \right\}$$
(16)

and Re is the Reynolds number for the experiments and based on the aerofoil chord and T_0 is the corresponding stagnation temperature in K .

From the values of u/U_p deduced previously it is possible using Eq.(14) to obtain an apparent skin friction coefficient (C_f) as a function of height above the aerofoil surface, which can then be used to extrapolate the profile to the aerofoil surface using in addition the profile for the viscous sublayer as given in Eq.(15). In practice a mean value has been obtained for the skin friction coefficient by averaging the values obtained for all measured points with $u/U_p \leqslant 0.6$ or, where there are less than three points meeting this condition, by averaging the values for the three points closest to the surface. The spread of values used is indicated by the vertical bars in Fig 6.6 with the symbol indicating the value used in the extrapolation to the surface*. The profile is assumed to change to the form of the viscous sublayer at the point where the two equations intersect, ie

$$\frac{z_{s}}{c} = \frac{10.135}{\text{Re}_{W} \left[\frac{C_{f}}{2} \left(1 + 0.2 M_{W}^{2} \right)^{\frac{1}{2}} \right]^{\frac{1}{2}}} . \tag{17}$$

A check was made to see that measurements were not used in the extrapolation procedure if they were within the sublayer thickness of the surface. This did not occur unless the boundary layer was close to separation.

The contributions to the displacement and momentum thicknesses from the first measured point to the surface were then obtained by numerical integration using Eq.(14) and (15), with Eq.(3) and (4) to derive the density ratio.

^{*} Near the trailing edge, the larger height of the vertical bar is caused by the boundary layer not obeying the law of the wall form up to $u/U_p = 0.6$, as the boundary layer approaches separation.

| 3. | DATA | SET |
|----|------|-----|
| | | |

1. Aerofoil

- 1.1 Aerofoil designation
- 1.2 Type of aerofoil
 - 1.2.1 aerofoil geometry

nose radius

maximum thickness

base thickness

1.2.2 design condition

design pressure distribution

1.3 Additional remarks

Ref 5

2.1 Chord length

Model geometry

Span (exposed)

2.3 Actual model co-ordinates and accuracy

2.4 Maximum thickness

2.5 Base thickness

0.61 m

RAE 2822

0.00827 chord

0.121 chord

1.83 m

see Table 6.1

73.76 mm

0.06 mm (0.0001c)

Wind tunnel (Test conditions in brackets)

- 3.1 Designation
- 3.2 Type of tunnel
 - 3.2.1 stagnation pressure
 - 3.2.2 stagnation temperature
 - 3.2.3 humidity
- 3.3 Test section
 - 3.3.1 dimensions
 - 3.3.2 type of walls

rear-loaded, subcritical, roof-top type pressure distribution at design conditions. Designed by

characteristics of aerofoil section are described in

second order method given in Ref 4

 $M_{\infty} = 0.66$, $C_{L} = 0.56$ ($\alpha = 1.06^{\circ}$)

see Fig 6.1 and Table 6.1

see Fig 6.2 and Ref 5

height = 1.83 m, width = 2.43 m, rectangular with corner fillets 160.5 mm $\times\ 45^{\circ}$

RAE 8ft × 6ft transonic wind tunnel

10 to 355 kN/m^2 (36 to 100 kN/m^2)

continuous, closed circuit

290 to 323 K (308 to 323 K)

<0.003 absolute humidity

1.6% slotted side-walls having 5 slots 5.84 mm wide at 353 mm centres symmetrical about the centre line of each wall, solid roof and floor, large volume single plenum chamber

3.4 Flow field (empty test section)

- 3.4.1 reference static pressure
- 3.4.2 flow angularity
- 3.4.3 Mach number distribution
- 3.4.4 pressure gradient
- 3.4.5 turbulence/noise level
- 3.4.6 roof/floor boundary layer

plenum chamber

 $\pm 0.03^{\text{O}}$ in the incidence plane $\pm 0.125^{\text{O}}$ in the plane normal to the incidence plane

 $\Delta M < \pm 0.001$ on the centre line in the region 0.75 m upstream to 1.25 m downstream of 0.25c for 0.3 < M < 0.8

see Fig 6.3 (from Ref 6)

not measured, approximately 4% to 5% of the test section semi-height at the model, no special treatment

Tests

4.1 Type of measurements

surface pressures wake pitot and static pressures boundary layer pitot and static pressures oilflow determination of flow separations

4.2 Tunnel/model dimensions 4.2.1 height/chord ratio NB model mounted vertically 4.2.2 width/chord ratio 4.3 Flow conditions included in present 4.3.1 angle of attack 4.3.2 Mach number see Table 6.2 4.3.3 Reynolds number 4.3.4 transition fixed - transition fixing ballotini (glass spheres), see Table 6.2 4.3.5 temperature equilibrium yes Instrumentation 5.1 Surface pressure measurements 5.1.1 pressure holes - size 0.35 mm diameter x/c = 0 to 0.01875 0.65 mm diameter x/c = 0.02709 to 0.950.35 mm diameter x/c = 0.975 to 1.0 depth/diameter ratio 2.0 - position see Table 6.3 and 6.4, and Fig 6.4 tunnel centre line at y/c = 1.6255.1.2 type of transducer and scanning differential-pressure capsule-manometers with devices stagnation reference pressure. I atmosphere range calibrated to give ±0.03% FSD accuracy. Pressure readings frozen when steady and then scanned 5.2 Wake measurements 5.2.1 type pitot static - size 0.5 mm OD 1.0 mm OD 0.25 mm ID 5.2.2 locations see Table 6.5 5.2.3 type of transducers and scanning devices 5.2.3.1 pressure measurements as 5.1.2 5.2.3.2 positional measurements x/c = 1.0 and 1.025, thin-film potentiometers calibrated to ±0.05 mm accuracy x/c = 2.0, tunnel centre-line-rig roll-unit giving ±0.5 mm accuracy 5.3 Boundary-layer measurements 5.3.1 type pitot static - size 1.0 mm OD rectangular (x/c < 0.6)1.2 mm \times 0.15 mm overall 1.0 mm \times 0.05 mm orifice circular (x/c > 0.6) 0.5 mm OD 0.25 mm ID 5.3.2 locations see Table 6.5 5.3.3 type of transducers and scanning devices 5.3.3.1 pressure measurements as 5.1.2 5.3.3.2 positional measurements thin-film potentiometers calibrated to give an accuracy of travel of 0.1% FSD for a range varying between 10 mm and 40 mm 5.5 Flow visualization

oilflow recorded on video tape (case 10)

5.5.2 surface flow

6. Data

- 6.1 Accuracy (wall interference excluded)
 - 6.1.1 angle of attack setting
 - 6.1.2 free stream Mach number
 - setting
 - variation during one boundary layer or wake traverse
 - 6.1.3 pressure coefficients
 - 6.1.7 remarks
- 6.2 Wall interference corrections
 - 6.2.1 angle of attack

- ±0.001
- ±0.002

$$\Delta C_{p} < \pm 0.0026$$
 Re = 6.5×10^{6}
 $< \pm 0.0064$ Re = 2.7×10^{6}

datum angle of attack determined from measurements made on a symmetrical aerofoil

$$\Delta \alpha \approx \frac{cC_L}{h} \delta_0 + \frac{c^2}{\beta h^2} \delta_1 \left(\frac{1}{4} C_L + C_m\right)$$
 radians

$$\Delta C_{L} = -\frac{\pi}{2} \left(\frac{c}{\beta h} \right)^{2} \delta_{1} C_{L}$$

$$\Delta C_{\rm m} = \frac{\pi}{8} \left(\frac{c}{\beta h} \right)^2 \delta_1 C_{\rm L}$$

with

(derived experimentally as in Ref 8 by tests with aerofoils of different chord)

NB -
$$w_i = \frac{\delta_0 cC_L}{h}$$
 and $\frac{\partial w_i}{\partial x} = \frac{\delta_1 cC_L}{\beta h^2}$

see Ref

- set to zero by selecting slot width see Ref 8
- see 6.2.1

6.2.3 streamline curvature

6.2.2 blockage

- 6.3 Presentation of data
 - 6.3.1 aerodynamic coefficients
 - 6.3.2 surface pressures
 - 6.3.3 boundary layer quantities
 - 6.3.4 wall interference corrections included?
 - 6.3.5 corrections for model deflection
 - 6.3.6 empty test section calibrations taken into account?
 - 6.3.7 other corrections included?
 - 6.3.8 additional remarks

CN and Cm deduced from:

- $C_{
 m N}$, $C_{
 m m}$ and $C_{
 m D}$ see Table 6.2
- C and p/H vs x/c see Table 6.7 and Fig 6.5

 C_f , δ^* , θ , H see Table 6.9 and Fig 6.6

wing twist measured and found to be <0.01°

ves

- 'displacement' correction to position of circular section pitot tubes of 0.18 \times OD ($\Delta z/c$ = 0.00015), no correction to position of rectangular pitot tubes
- C_p with erroneous manometer readings eliminated x/c design values for pressure holes
- NB the manometers were read in groups designated by Bank number. The variation of Mach number with Bank number is given in Table 6.7 and the associated x/c positions can be obtained from Tables 6.3 and 6.6

datum for boundary layers the model surface, datum for wakes the chordal plane except x/c = 1.025 where the datum is arbitrary

| Tables 6 | 7 | and | 6 | Q |
|----------|---|-----|---|---|

the contents of these tables are available on paper tape

6.4 Were tests carried out in different facilities on the current aerofoil?

no

6.5 To be contacted for further information on tests

Mr P.H. Cook Aerodynamics Department, Royal Aircraft Establishment, Farnborough.

Mr M.C.P. Firmin

References

D.F. Myring The effects of normal pressure gradients on the boundary layer momentum integral equation.

RAE Technical Report 68214 (1968)

2 J. Zwaaneveld Comparison of various methods for calculating profile drag from pressure measurements in the near wake at subcritical speeds. AGARD-CP-124 Paper No.10 (1973)

3 K.G. Winter L.Gaudet Turbulent boundary layer studies at high Reynolds number at Mach numbers between 0.2 and 2.8. ARC R & M 3712 (1970)

Second-order method for estimating the subcritical pressure distribution on a two-dimensional aerofoil in compressible inviscid flow.

TD Memorandum ESDU 72025 (1973)

5 M.C.P. Firmin Proposals-for investigation of shock wave boundary layer interactions in the RAE 8ft × 6 ft (2.4m × 1.8m) transonic wind tunnel.

RAE Technical Memorandum Aero 1285 (1971)

D.G. Mabey
Boundary layer transition measurements on the AEDC 10° cone in three RAE wind tunnels and their implications.
RAE Technical Report 76077 (1976)

7 H.C. Garner Subsonic wind tunnel wall corrections.
E.W.E. Rogers AGARDograph 109 (1966)
W.E.A. Acum
E.C. Maskell

8 M.C.P. Firmin
T.A. Cook
Detailed exploration of the compressible viscous flow over two-dimensional aerofoils at high Reynolds numbers.
(Lecture, International Council of Aeronautical Sciences 6th Congress, Munich, September 1968)
RAE Technical Memorandum Aero 1076 (1968)
ICAS Paper 68-09

8. List of symbols

c(C) chord length

CD drag coefficient

C_f local skin friction coefficient based on conditions at the wall (see section 2.2)

C_L lift coefficient

C pitching moment coefficient (Ref 0.25c)

 C_{N} normal force coefficient

C_p(CP) pressure coefficient

C* critical pressure coefficient

(C_p)_P pressure coefficient at point P

h height of tunnel

H total head pressure, also δ^*/θ

M_∞(M) free-stream Mach number

M, local Mach number

M Mach number defined by local static pressure and the total pressure at the edge of the boundary layer or wake

⁺ Additional symbols in brackets are used in line-printer output.

P surface static pressure Po total pressure Re (RE) free-stream Reynolds number maximum thickness of aerofoil section u(U) local velocity within the boundary layer or wake Up(UP) velocity obtained from the pitot pressure measured at the edge of the boundary layer or wake and static pressure measured at the appropriate value of $\,z/c\,$ UW value for $U_{\mathbf{p}}$ at wall or centre of the wake equivalent incompressible friction velocity (see Ref 3) non-dimensional mean wall-interference velocity at mid-chord wi x(X)chordwise ordinate (datum at leading edge) y(Y)spanwise ordinate (datum 76 mm outside working section at the tunnel roof, see Fig 6.4) (y/c = 1.625 for tunnel centre line) z(Z)section ordinate, also position in the boundary layer from the model surface and the distance across the wake α(ALPHA) geometric incidence δ z/c for $u/U_p = 0.995$ interference parameter associated with w; 00 interference parameter associated with streamline curvature 8, 8* displacement thickness corrected for normal static pressure gradient when measured, see Eq.(8) and (9)momentum thickness kinematic viscosity at edge of boundary layer $^{\rho}P$ density at point in boundary layer defined in the same way as Up $\rho_{\rm p}$ at the wall or centre of the wake

Table 6.1

SECTION RAE2822 STATION Y/C= 1.504

| | DESIGN OR | DINATES | | MEASURED | The state of the s | |
|---------|--------------|----------|---------|----------|--|----------|
| x/c | Z/C UPPER | LOWER | UPPER | FRROR | /C LOWER | ERROR |
| 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 0.00060 | 0.00316 | 0.00316 | 0.00323 | 0.00006 | 0.00317 | 0.00001 |
| 0.00241 | 0.00631 | 0.00631 | 0.00642 | 0.00011 | 0.00658 | 0.00027 |
| 0.00541 | 0.00942 | 0.00944 | 0.00945 | 0.00003 | 0.00957 | 0.00013 |
| 0.00961 | 0.01248 | 0.01256 | 0.01269 | 0.00021 | 0.01273 | 0.00017 |
| 0.01498 | 0.01549 | 0.01565 | 0.01579 | 0.00030 | 0.01580 | 0.00015 |
| 0.02153 | 0.01844 | 0.01871 | 0.01875 | 0.00031 | 0.01880 | 0.00010 |
| 0.02923 | 0.02135 | 0.02172 | 0.02163 | 0.00028 | 0.02180 | 0.00007 |
| 0.03806 | 0.02422 | 0.02469 | 0.02445 | 0.00023 | 0.02472 | 0.00003 |
| 0.04801 | 0.02706 | 0.02759 | 0.02726 | 0.00020 | 0.02761 | 0.00003 |
| 0.05904 | 0.02987 | 0.03042 | 0.03004 | 0.00016 | 0.03042 | 0.00000 |
| 0.07114 | 0.03264 | 0.03317 | 0.03280 | 0.00016 | 0.03315 | -0,00002 |
| 0.08427 | 0.03536 | 0.03584 | 0.03552 | 0.00016 | 0.03584 | -0.00001 |
| 0.09840 | 0.03801 | 0.03843 | 0.03817 | 0.00016 | 0.03844 | 0.00001 |
| 0.11349 | 0.04059 | 0.04093 | 0.04073 | 0.00015 | 0.04094 | 0.00001 |
| 0.14645 | 0.04546 | 0.04561 | 0.04321 | 0.00014 | 0.04561 | 0.00000 |
| 0.16422 | 0.04773 | 0.04777 | 0.04778 | 0.00005 | 0.04775 | -0.00002 |
| 0.18280 | 0.04987 | 0.04981 | 0.04987 | -0.00000 | 0.04977 | -0.00003 |
| 0.20215 | 0.05188 | 0.05169 | 0.05187 | -0.00002 | 0.05167 | -0.00002 |
| 0.22221 | 0.05375 | 0.05343 | 0.05377 | 0.00002 | 0.05340 | -0.00002 |
| 0.24295 | 0.05547 | 0.05499 | 0.05556 | 0.00009 | 0.05498 | -0.00001 |
| 0.26430 | 0.05703 | 0,05638 | 0.05713 | 0.00011 | 0.05638 | -0.00000 |
| 0.28622 | 0.05841 | 0.05755 | 0.05848 | 0.00007 | 0.05753 | -0.00001 |
| 0.30866 | 0.05963 | 0.05846 | 0.05967 | 0.00005 | 0.05843 | -0.00003 |
| 0.33156 | 0.06066 | 0.05905 | 0.06070 | 0.00004 | 0.05900 | -0.00005 |
| 0.35486 | 0.06150 | 0.05924 | 0.06155 | 0.00005 | 0.05919 | -0.00005 |
| 0.37851 | 0.06213 | 0.05897 | 0.06220 | 0.00006 | 0.05893 | -0.00004 |
| 0.40245 | 0.06256 | 0.05822 | 0.06263 | 0.00007 | 0.05817 | -0.00006 |
| 0.42663 | 0.06278 | 0.05698 | 0.06285 | 0.00007 | 0.05689 | -0.00009 |
| 0.45099 | 0.06277 | 0.05526 | 0.06286 | 0.00008 | 0.05515 | -0.00010 |
| 0.47547 | 0.06253 | 0.05310 | 0.06261 | 0.00008 | 0.05297 | -0.00013 |
| 0.52453 | 0.06125 | 0.04772 | 0.06135 | 0.00010 | 0.04761 | -0.00011 |
| 0.54901 | 0.06019 | 0.04464 | 0.06030 | 0.00010 | 0.04452 | -0.00012 |
| 0.57336 | 0.05885 | 0.04140 | 0.05895 | 0.00010 | 0.04127 | -0,00013 |
| 0.59754 | 0.05722 | 0.03804 | 0.05733 | 0.00011 | 0.03791 | -0.00013 |
| 0.62149 | 0.05534 | 0.03463 | 0.05547 | 0.00012 | 0.03463 | -0.00000 |
| 0.64514 | 0.05326 | 0.03121 | 0.05339 | 0.00013 | 0.03110 | -0.00011 |
| 0.66845 | 0.05099 | 0.02781 | 0.05112 | 0.00013 | 0.02770 | -0.00011 |
| 0.69134 | 0.04857 | 0.02449 | 0.04857 | 0.00000 | 0.02438 | -0.00011 |
| 0.71378 | 0.04603 | 0.02129 | 0.04612 | 0.00010 | 0.02118 | -0.00011 |
| 0.73570 | 0.04338 | 0.01823 | 0.04338 | -0.00000 | 0.01812 | -0.00011 |
| 0.75705 | 0.04064 | 0.01536 | 0.04075 | 0.00011 | 0.01524 | -0.00012 |
| 0.77778 | 0.03785 | 0.01269 | 0.03795 | 0.00011 | 0.01256 | -0.00013 |
| 0.79785 | 0.03502 | 0.01024 | 0.03514 | 0.00013 | 0.01013 | -0.00012 |
| 0.83578 | 0.02935 | 0.00605 | 0.02948 | 0.00014 | 0.00594 | -0.00011 |
| 0.85355 | 0.02655 | 0.00431 | 0.02670 | 0.00014 | 0.00422 | -0.00010 |
| 0.87048 | 0.02382 | 0.00283 | 0.02397 | 0.00015 | 0.00273 | -0.00010 |
| 0.88651 | 0.02115 | 0.00159 | 0.02131 | 0.00016 | 0.00149 | -0.00011 |
| 0.90160 | 0.01858 | 0.00060 | 0.01874 | 0.00016 | 0.00049 | -0.00011 |
| 0.91574 | 0.01611 | -0.00016 | 0.01627 | 0.00016 | -0.00027 | -0.00012 |
| 0.92886 | 0.01377 | -0.00069 | 0.01393 | 0.00016 | -0.00081 | -0.00011 |
| 0.94096 | 0.01156 | -0.00103 | 0.01170 | 0.00014 | -0.00113 | -0.00010 |
| 0.95200 | 0.00951 | -0.00120 | 0.00964 | 0.00013 | -0.00125 | -0.00005 |
| 0.96194 | 0.00762 | -0.00121 | 0.00775 | 0.00013 | -0.00125 | -0.00004 |
| 0.97077 | 0.00592 | -0.00111 | 0.00606 | 0.00014 | -0.00113 | -0.00002 |
| 0.97847 | 0.00440 | -0.00093 | 0.00455 | 0.00015 | -0.00094 | -0.00000 |
| 0.98502 | 0.00309 | -0.00072 | 0.00326 | 0.00017 | -0.00071 | 0.00001 |
| 0.99039 | 0.00200 | -0.00050 | 0.00218 | 0.00018 | -0.00048 | 0.00002 |
| 0.99459 | 0.00114 | -0.00030 | 0.00132 | 0.00018 | -0.00009 | 0.00005 |
| 0.99940 | 0.00013 | -0.00004 | 0.00030 | 0.00018 | 0.00001 | 0.00004 |
| 1.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| | | | | | | |

Table 6.2
TEST CASES

| Case | number | 1 | 2 | 3 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 13A |
|---------------------|-----------------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|
| M _∞ | | 0.676 | 0.676 | 0.600 | 0.725 | 0.725 | 0.728 | 0.730 | 0.750 | 0.730 | 0.745 | 0.740 |
| α ^O | | 2.40 | -2.18 | 2.57 | 2.92 | 2.55 | 3.22 | 3.19 | 3.19 | 3.19 | 3.19 | 3.19 |
| Re × 10 on chor | -6 (based d) | 5.7 | 5.7 | 6.3 | 6.5 | 6.5 | 6.5 | 6.5 | 6.2 | 2.7 | 2.7 | 2.7 |
| tion | Diameter (mm) | 0.127 | 0.127 | 1.270 | 0.254 | 0.254 | 0.254 | 0.762 | 0.762 | 0.762 | 0.762 | 0.762 |
| trip | x/c | 0.11 | 0.11 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Probe configuration | | В | В | В | В | В | В | C1 C2 D1 | CI | C D | D | C2 |
| C _N | | 0.566 | -0.121 | 0.522 | 0.743 | 0.658 | 0.802 | 0.803 | 0.743 | 0.721 | 0.705 | 0.733 |
| C _m (0.2 | 5c) | -0.082 | -0.028 | -0.073 | -0.095 | -0.090 | -0.100 | -0.099 | -0.106 | -0.078 | -0.087 | -0.086 |
| СД | | 0.0085 | 0.0079 | 0.0101 | 0.0127 | 0.0107 | 0.0175 | 0.0168 | 0.0242 | 0.0133 | - | 0.018 |

- NB 1) see table 6.5 for probe configurations.
 - Case 9 Configuration C2 is the results of C1 analysed with the assumption of constant static pressure across the boundary layer or wake.

3) Case 12 - Configuration D measurements include repeats of C.

Table 6.3

DESIGN LOCATION OF SURFACE PRESSURE HOLES

| | 17 | 75 | 72 | 12 | 52 | 10 | 100 | 31 | 71 | = | 50 | 000 | 200 | 200 | 9 | 60 | 67 | 68 | 42 | 67 | 92 | 17 | 42 | 84 | 25 | 129 | 17 | 1 78 | 50 | 00 | 19 | 34 | 42 | 17 | 00 | 17 | 00 | 1 29 | 1 29 | 00 | | | | |
|----------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| y/c | 2.84917 | 2.84375 | 2.58372 | 2.59712 | 2.61052 | 2 62301 | 4.043 | 2.63731 | 2.65071 | 2.6641 | 2.67750 | 2 60000 | 200000 | 7.104 | 2.71770 | 2.73109 | 2.74449 | 2.75789 | 2.77542 | 2.78667 | 2.79792 | 2.80917 | 2.82042 | 2.82584 | 2.83125 | 0.91667 | 1.25417 | 1.42084 | 1.58750 | 2.02500 | 2.24167 | 2.48334 | 2.88542 | 1.22917 | 1.40000 | 2.00417 | 2.25000 | 2.41667 | 2.61667 | 3.05000 | | | | |
| x/c | 0.98750 | 0.99375 | 0.05000 | 0.10000 | 0.15000 | 00000 | 0.2000 | 0.25000 | 0.30000 | 0.35000 | 0.4000 | 000057 | 00000 | 0.50000 | 0.55000 | 0.60000 | 0.65000 | 0.70000 | 0.77500 | 0.82500 | 0.87500 | 0.92500 | 0.97500 | 0.98750 | 0.99375 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.70000 | 0.70000 | 0.70000 | 0.70000 | 0.70000 | 0.70000 | 0.70000 | | | | |
| Surface | n | n | ı | 1 | 7 | 1 . | ı | 7 | 1 | 1 | - | 1 . | ۱, | J | L | ı | 1 | L | 1 | ı | 1 | ı | 1 | ı | 1 | n | n | n | n | n | n | n | n | n | n | n | n | n | Ω | n | | | | |
| Hole No. | 122 | 123 | 124 | 125 | 126 | 101 | 171 | 128 | 129 | 130 | 131 | | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 1466 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | | | | |
| y/c | 1.49375 | 1.51459 | 1.49375 | 1.51459 | 1.49375 | 017.50 | 1.51459 | 1.49375 | 1.51459 | 1.49375 | 1 51459 | 25007 | 1.49373 | 1.39 /09 | 1.39709 | 1.40834 | 1.41959 | 1.43084 | 1.44209 | 1.45334 | 1.46459 | 1.47584 | 1.48709 | 1.49250 | 1.49792 | 2.66474 | 2.68294 | 2.70114 | 2.71934 | 2.75573 | 2.77393 | 2.79213 | 2.81033 | 2.82853 | 2.84673 | 2.86492 | 2.88312 | 2.90132 | 2.89959 | 2.88834 | 2.87709 | 2.86584 | 2.85459 | |
| x/c | 0.45000 | 0.47500 | 0.50000 | 0.52500 | 0.55000 | 00000 | 0.5/500 | 0.0009.0 | 0.61959 | 0.65000 | 60229 | 00000 | 0.7000 | 0.75000 | 0.77500 | 0.80000 | 0.82500 | 0.85000 | 0.87500 | 0.90000 | 0.92500 | 0.95000 | 0.97500 | 0.98750 | 0.99375 | 0.05000 | 0.10000 | 0.15000 | 0.20000 | 0.30000 | 0.35000 | 0.40000 | 0.45000 | 0.50000 | 0.55000 | 0.60000 | 0.65000 | 0.70000 | 0.77500 | 0.82500 | 0.87500 | 0.92500 | 0.97500 | |
| Surface | 1 | 7 | ı | 1 | | , | | ,1 | 7 | ,- | 1 - | ١, | , د | 7 | 1 | 1 | 7 | 1 | 1 | -1 | נו | 1 | ı | 1 | 1 | n | n | n | n | n | D | n | Ω | n | n | Ω | n | n | n | n | n | n | U | |
| Hole No. | 81 | 82 | 83 | 84 | 85 | 500 | 8 | 87 | 88 | 80 | 00 | 200 | 16 | 92 | 93 | 76 | 95 | 96 | 97 | 86 | 66 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 1111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | |
| y/c | 1.75625 | 1.73209 | 1.73209 | 1.72084 | 1.70959 | 7000 | 1.69834 | 1.68709 | 1.67584 | 1.66459 | 1 65334 | +00000 | 1.64209 | 1.63667 | 1.63125 | 1.61667 | 1.60834 | 1.60000 | 1.59167 | 1.58334 | 1.57500 | 1.56667 | 1.55834 | 1.55000 | 1.54167 | 1.53334 | 1.52500 | 1.51667 | 1.50417 | 1.50417 | 1.50417 | 1.50417 | 1.50417 | 1.50417 | 1.50417 | 1.49375 | 1.51459 | 1.49375 | 1.51459 | 1.49375 | 1.51459 | 1.49375 | 1.51459 | |
| x/c | 0.70000 | 0.75000 | 0.77500 | 0.80000 | 0.82500 | 00000 | 0.85000 | 0.87500 | 0.90000 | 0 92500 | 0 05000 | 000000 | 0.97500 | 0.98750 | 0.99375 | 0.00021 | 0.00075 | 0.00155 | 0.00255 | 0.00359 | 0.00475 | 0.00600 | 0.00730 | 0.00871 | 0.01042 | 0.01250 | 0.01459 | 0.01859 | 0.02709 | 0.03750 | 0.05000 | 0.06250 | 0.07500 | 0.10000 | 0.15000 | 0.20000 | 0.25000 | 0.30000 | 0.32500 | 0.35000 | 0.37500 | 0.40000 | 0.42500 | |
| Surface | n | n | n | 1 | = | · : | n | n | n | | . = | o ; | 0 | n | n | 1 | L | 1 | 1 | 1 | 1 | 12 | 1 | 12 | ı | ı 🚅 | 17 | 1 | 1 | ı | ı | ı | ı | ı | T | ı | 1 | 1 | ı | 1 | | 1 1 | T | |
| Hole No. | 07 | 41 | 42 | 43 | 77 | | 45 | 94 | 47 | 87 | 0.7 | 7 1 | 20 | 51 | 52 | 53 | 54 | 55 | 26 | 57 | 58 | 29 | 09 | 61 | 62 | 63 | 79 | 65 | 99 | 67 | 89 | 69 | 70 | 7.1 | 72 | 73 | 74 | 75 | 16 | 77 | 78 | 79 | 80 | |
| y/c | 1.6250 | 1.63334 | 1.64167 | 1.65000 | 1 65834 | | 1.66667 | 1.67500 | 1.68334 | 1 69167 | 1 2000 | 1.7000 | 1./0834 | 1.71667 | 1.72500 | 1.73334 | 1.74584 | 1.74584 | 1.74584 | 1.74584 | 1.74584 | 1.74584 | 1.74584 | 1.75625 | 1.73542 | 1.74584 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | 1.75625 | 1.73542 | |
| x/c | 0 | 0.00021 | 0.00075 | 0.00155 | 0 00255 | 0.000 | u.00359 | 0.00475 | 0.00600 | 0 00730 | 0 00871 | 0.0000 | 0.01042 | 0.01250 | 0.01459 | 0.01875 | 0.02709 | 0.03750 | 0.05000 | 0.06250 | 0.02200 | 0.10000 | 0.15000 | 0.20000 | 0.22084 | 0.25000 | 0.27917 | 0.30000 | 0.32500 | 0.35000 | 0.37500 | 0.40000 | 0.42500 | 0.45000 | 0.47500 | 0.50000 | 0.52500 | 0.55000 | 0.57500 | 0.60000 | 0.61959 | 0.65000 | 0.67709 | |
| Surface | | n | מ | 1 | - | | 5 | n | n | - | . = | | 0 | n | n | n | n | n | n | n | n | 0 | n | n | 11 | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | מ | |
| Hole No. | 0 | 1 | 2 | 3 | 7 | | 0 | 9 | 7 | œ | 0 | | 0 1 | = | 12 | 13 | 14 | 15 | 16 | 17 | 82 | 6 | 20 | 21 | 22 | 222 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | |

The state of the s

Table 6.4

MEASURED LOCATION OF SURFACE PRESSURE HOLES (Accuracy of measurement = ±0.00004)

| - 1 | - | - | - | - | - | - | _ | - | - | - | - | | _ | - | - | - | - | | - | _ | | | | - | | - | - | - | _ | - | - | - | - | _ | - | - | _ | - | _ | _ | - |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| y/c | 2.84947 | 2.84410 | | 2.59894 | 2.61248 | 2,62567 | 2.63922 | 2.65277 | 2.66474 | 2.67824 | 2.69159 | 2.70498 | 2.71847 | 2.73313 | 2.74526 | 2.75957 | 2.77702 | 2.78831 | 2.79960 | 2.81024 | 2.82202 | 2.82653 | 2.83192 | 0.19978 | 1.25447 | 1.42107 | 1.58787 | 2.02552 | 2.24209 | 2.48377 | 2.88576 | 1.23005 | 1.40097 | 2.00629 | 2.25214 | 2.41767 | 2.61758 | 3.05087 | | | |
| x/c | 0.98817 | 0.99419 | | 0.09977 | 0.14972 | 0.19988 | 0.24980 | 0.29973 | 0.34973 | 0.39980 | 87644.0 | 0.49972 | 0.54985 | 0.59973 | 0.64985 | 0.69970 | 0.77558 | 0.82556 | 0.87555 | 0.92540 | 0.97564 | 0.98813 | 0.99433 | 0.19978 | 0.19972 | 0.19969 | 0.19965 | 0.19965 | 0.19969 | 0.19955 | 0.19964 | 0.69981 | 0.69985 | 0.69982 | 87669.0 | 87669.0 | 87669.0 | 09669.0 | | | |
| Surface | n | n | 1 | ı | 1 | ı | 1 | 1 | 1 | 1 | L | ı | 1 | ı | 1 | ı | ı | ı | 1 | 1 | 1 | 1 | 1 | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | | | |
| Hole No. | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 1466 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | | | |
| y/c | 1.49427 | 1.51503 | 1.49418 | 1.51512 | 1.49432 | 1.51504 | 1.49410 | 1.51484 | 1.49405 | 1.51616 | 1.49426 | 1.51427 | 1.51956 | 1.53076 | 1.54196 | 1.55327 | 1.56449 | 1.57590 | 1.58745 | 1.59973 | 1.61074 | 1.61497 | 1.62050 | | 2.68358 | 2,70171 | 2.72004 | 2.75663 | 2.77446 | 2.79381 | 2.81097 | 2.82919 | 2.84722 | 2.86562 | 2.88361 | 2.90174 | 2.90015 | 2.88883 | 2.87747 | | 2.85490 |
| x/c | 0.44996 | 0.47500 | 0.50005 | 0.52499 | 0.55006 | 0.57492 | 0.59993 | 0.62355 | 0.64980 | 96929.0 | 0.70009 | 0.75018 | 0.77529 | 0.80015 | 0.82508 | 0.85020 | 0.87506 | 0.90003 | 0.92508 | 0.95003 | 0.97493 | 0.98762 | 0.99387 | | 0.09959 | 0.14921 | 0.19972 | 0.29965 | 0.34969 | 0.39970 | 0.44863 | 0.49967 | 0.54963 | 0.59829 | 0.64983 | 0.69971 | 0.77555 | 0.82545 | 0.87523 | | 0.97570 |
| Surface | L | ı | ı | ы | 1 | 1 | ы | u | ı | 1 | 1 | ı | נו | 1 | 1 | 1 | ı | ı | 1 | 1 | 1 | נו | 1 | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n |
| Hole No. | 81 | 82 | 83 | 84 | 85 | 98 | 87 | 88 | 68 | 06 | 91 | 92 | 93 | 76 | 95 | 96 | 97 | 86 | 66 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 |
| y/c | 1.75666 | 1.73372 | 1.73366 | 1.72254 | 1.75300 | 1.69996 | 1.68878 | 1.67750 | 1.66625 | 1.65504 | 1.64373 | 1.63824 | 1.63288 | | | 1.59965 | 1.59125 | 1.58303 | 1.57482 | 1.56632 | 1.55803 | 1.54969 | 1.54136 | 1.53302 | 1.52478 | 1.51649 | 1.50435 | 1.50428 | 1.50436 | 1.50435 | 1.50443 | 1.50417 | 1.50442 | 1.49523 | 1.51500 | 1.49412 | 1.51488 | 1.49391 | 1.51495 | 1.49391 | 1.51472 |
| x/c | 0.69975 | 0.75025 | 0.77521 | 90008.0 | 0.82513 | 0.85005 | 0.87519 | 60006.0 | 0.92505 | 0.95008 | 0.97540 | 0.98787 | 0.99394 | | | 0.00149 | 0.00219 | 0.00327 | 0.00444 | 0.00565 | 0.00700 | 0.00827 | 86600.0 | 0.01209 | 0.01434 | 0.01833 | 0.02658 | 0.03734 | 0.04986 | 0.06230 | 0.07482 | 0.09983 | 0.14978 | 0.19986 | 0.24986 | 0.29986 | 0.32493 | 0.34992 | 0.37497 | 0.39998 | 0.42494 |
| Surface | n | n | n | n | n | n | n | n | n | n | n | n | n | I. | 1 | 1 | ı | ı | ı | ı | T | 1 | 1 | 1 | 1 | ı | 1 | 1 | 1 | ı | T T | T. | 7 | יו | 1 | ı | ני | 1 | 7 | 7 | 1 |
| Hole No. | 70 | 4.1 | 42 | 43 | 77 | 45 | 97 | 47 | 87 | 65 | 20 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 09 | 61 | 62 | 63 | 79 | 79 | 99 | 29 | 89 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 9/ | 7,7 | 78 | 79 | 80 |
| y/c | | | 1.64164 | 1.64995 | 1.65821 | 1.66656 | 1.67489 | 1.68329 | 1.69171 | 1.69995 | 1.70825 | 1.71677 | 1.72501 | | 1.74684 | 1.74620 | 1.74620 | 1.74622 | 1.74615 | 1.74632 | 1.74643 | 1.75676 | 1.73527 | 1.75603 | 1.73515 | 1.75664 | 1.73591 | 1.75680 | 1.73592 | 1.75680 | 1.73577 | 1.75659 | 1.73590 | 1.75664 | 1.73580 | 1.75666 | 1.73583 | 1.75710 | 1.73589 | 1.75670 | 1.73585 |
| x/c | | | 0.00109 | 0.00159 | 0.00259 | 0.00356 | 0.00462 | 0.00579 | 0.00710 | 0.00863 | 0.01022 | 0.01244 | 0.01440 | | 0.02671 | 0.03719 | 0.04978 | 0.06230 | 0.07478 | 0.09972 | 0.14919 | 0.19965 | 0.22176 | 0.25015 | 0.27777 | 0.29988 | 0.32492 | 0.34963 | 0.37463 | 0.39957 | 0.42546 | 0.44974 | 0.47470 | 0.49980 | 0.52483 | 0.54971 | 0.57498 | 0.59977 | 0.619321 | 0.64981 | 0.67703 |
| Surface | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | 2 | D | n | n | n | n | n | n | n | n | n | n |
| Hole No. | 0 | - | 2 | 3 | 7 | 2 | 9 | 7 | œ | 6 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 222 | 23 | 24 | 25 | 56 | 27 | 28 | 67 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

Table 6.5

| | U |
|--|----------|
| | fx |
| | 77 |
| | TRAVERCE |
| | 2 |
| | fx. |
| | - |
| | 5 |
| | 3 |
| | 2 |
| | - |
| | |
| | 12 |
| | - |
| | LAKE |
| | 4 |
| | - |
| | - |
| | _ |
| | - |
| | 2 |
| | AND |
| | |
| | æ |
| | α |
| | [1 |
| | 5 |
| | - |
| | LAVER |
| | - |
| | |
| | 5 |
| | ~ |
| | - |
| | 2 |
| | OINNARV |
| | 2 |
| | F |
| | 7 |
| | • |

| Type of probe | and static | and static and static and static and static and static | and static (c = 1.31 and static and static and static and static and static |
|---------------|---|---|--|
| Typ | Pitot Pitot Pitot Pitot Pitot Pitot Pitot | Pitot | Pitot Pitot Pitot Pitot Pitot Pitot and at y/c = Pitot and Pitot and Pitot and Pitot and Pitot and Pitot and |
| Surface | Lower Upper Upper Upper Upper Wake | Lower Upper Upper Upper Upper Upper Upper Upper Upper Upper Wake | Lower Upper Upper Upper Upper Upper Upper Upper Upper Wake |
| | | | 2.42 2.29 2.40 2.45 2.59 2.59 |
| y/c | 2.42 2.29 2.40 | | 2.00 1.88 1.98 2.03 2.17 2.14 |
| | 1.17 1.04 1.15 2.18 2.64 2.02 2.02 2.82 1.5 | 1.17 1.04 1.15 1.30 1.31 2.60 2.21 2.43 2.02 2.82 1.5 | 1.17 1.04 1.15 1.20 1.34 1.31 2.60 2.21 2.02 2.02 2.82 1.5 |
| x/c | 0.152 0.179 0.319 0.75 0.90 1.00 1.00 2.00 | 0.152 0.179 0.319 0.404 0.498 0.574 0.65 0.75 0.90 1.005 2.00 | 0.152 0.179 0.319 0.404 0.498 0.574 0.65 0.90 1.00 1.00 2.00 |
| Configuration | 6 0 | C Cl extra static at x/c = C.498 C2 no statics except af x/c = 2.0 | D Dl extra static at x/c = 0.498 y/c = 1.34 D2 no statics except at x/c = 2.0 |

Table 6.6 SURFACE PRESSURE HOLE CONNECTIONS

| | 2 | | | |
|--------------|--------------------|--|--|--|
| | 4 | 108 | | 123 133 133 133 133 133 133 140 144 144 144 145 146 146 146 |
| 13 | 3 | 38 39 40 40 40 40 40 40 40 40 40 40 40 40 40 | 44 44 44 44 44 44 44 44 44 44 44 44 44 | 100 100 100 100 100 100 100 100 100 100 |
| 10,12, | 2 | 222 | 25 27 27 28 30 33 33 33 33 33 33 | 35 35 36 36 37 37 37 37 37 38 38 38 38 38 38 38 38 38 38 38 38 38 |
| 9,1 | - | 0-264 | 0 | 25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| | 2 | | | 146 1466 1479 1530 1531 1531 1531 1531 1531 1531 1531 |
| 7,8 | 7 | 744 742 744 749 749 | 50 51 52 117 118 119 120 121 | 98 100 100 100 100 100 140 147 147 147 167 108 |
| ,3,6,7 | 3 | 32 33 | 35 37 37 37 39 40 41 42 43 83 | 888 887 890 900 900 901 907 907 907 907 907 907 907 907 907 907 |
| 1,2, | c1 | 100 | 22 23 23 23 24 25 26 27 28 | 09 09 09 09 09 09 09 09 09 09 |
| | 1 | 0-764 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 55 55 56 60 60 60 60 60 60 60 60 60 60 60 60 60 |
| Case numbers | Bank No. No. | - 0 w 4 w v | 10 10 11 12 14 15 16 | 7 1 1 8 8 7 1 8 8 8 8 8 8 9 9 8 8 8 9 9 9 8 8 9 |

Table 6.7
SURFACE PRESSURE DISTRIBUTION

CASE I M = 0.676 ALPHA = 2.40 RE = 5700000

| BANK | MACH NO | H(KN/SQ.M) | REYNOLDS | NO |
|------|---------|------------|----------|----|
| 1 | 0.6768 | 84.29 | 5678000 | |
| 2 | 0.6766 | 84.48 | 5690000 | |
| 3 | 0.6773 | 84.48 | 5692000 | |
| 4 | 0.6769 | 84.43 | 569 1000 | |

| UPPE | R SURFACE | | LOW | EK SURFAC | E |
|--------|-----------|---------|--------|-----------|---------|
| X/C | P/H | CP | X/C | P/H | CP |
| 0.9938 | 0.7699 | 0.1449 | 0.0000 | 0.9330 | 0.8359 |
| 0.9875 | 0.7671 | 0.1328 | 0.0002 | 0.9799 | 1.0348 |
| 0.9750 | 0.7611 | 0.1075 | 0.0008 | 0.9944 | 1.0962 |
| 0.9500 | 0.7491 | 0.0567 | 0.0016 | 0.9985 | 1.1135 |
| 0.9250 | 0.7350 | -0.0030 | 0.0026 | 0.9941 | 1.0946 |
| 0.9000 | 0.7223 | -0.0570 | 0.0036 | 0.9825 | 1.0456 |
| 0.8750 | 0.7105 | -0.1070 | 0.0048 | 0.9681 | 0.9847 |
| 0.8500 | 0.6988 | -0.1565 | 0.0060 | 0.9539 | 0.9243 |
| 0.8250 | 0.6875 | -0.2043 | 0.0073 | 0.9386 | 0.8598 |
| 0.8000 | 0.6770 | -0.2477 | 0.0087 | 0.9275 | 0.8124 |
| 0.7750 | 0.6665 | -0.2920 | 0.0104 | 0.9136 | 0.7538 |
| 0.7500 | 0.6564 | -0.3348 | 0.0125 | 0.8982 | 0.6886 |
| 0.7000 | 0.6347 | -0.4265 | 0.0146 | 0.8845 | 0.6302 |
| 0.6771 | 0.6261 | -0.4632 | 0.0186 | 0.8645 | 0.5457 |
| 0.6500 | 0.6130 | -0.5186 | 0.0271 | 0.8392 | 0.4384 |
| 0.6196 | 0.6004 | -0.5720 | 0.0375 | 0.8124 | 0.3249 |
| 0.6000 | 0.5931 | -0.6029 | 0.0500 | 0.7901 | 0.2296 |
| 0.5750 | 0.5831 | -0.6451 | 0.0625 | 0.7755 | 0.1678 |
| 0.5500 | 0.5755 | -0.6773 | 0.0750 | 0.7640 | 0.1190 |
| 0.5250 | 0.5685 | -0.7069 | 0.1000 | 0.7452 | 0.0391 |
| 0.5000 | 0.5648 | -0.7227 | 0.1500 | 0.7210 | -0.0632 |
| 0.4750 | 0.5609 | -0.7393 | 0.2000 | 0.7025 | -0.1416 |
| 0.4500 | 0.5590 | -0.7471 | 0.2500 | 0.6851 | -0.2157 |
| 0.4250 | 0.5569 | -0.7559 | 0.3000 | 0.6691 | -0.2834 |
| 0.4000 | 0.5545 | -0.7694 | 0.3250 | 0.6614 | -0.3158 |
| 0.3750 | 0.5528 | -0.7766 | 0.3500 | 0.6548 | -0.3441 |
| 0.3500 | 0.5523 | -0.7788 | 0.3750 | 0.6513 | -0.3589 |
| 0.3250 | 0.5524 | -0.7782 | 0.4000 | 0.6516 | -0.3575 |
| 0.3000 | 0.5496 | -0.7900 | 0.4250 | 0.6566 | -0.3365 |
| 0.2800 | 0.5443 | -0.8126 | 0.4500 | 0.6646 | -0.3024 |
| 0.2500 | 0.5412 | -0.8259 | 0.4750 | 0.6734 | -0.2651 |
| 0.2208 | 0.5465 | -0.8033 | 0.5000 | 0.6842 | -0.2169 |
| 0.2000 | 0.5474 | -0.7996 | 0.5250 | 0.6942 | -0.1747 |
| 0.1500 | 0.5397 | -0.8322 | 0.5500 | 0.7051 | -0.1284 |
| 0.1000 | 0.5317 | -0.8661 | 0.5750 | 0.7150 | -0.0865 |
| 0.0750 | 0.5307 | -0.8705 | 0.6000 | 0.7252 | -0.0434 |
| 0.0625 | 0.5276 | -0.8833 | 0.6196 | 0.7317 | -0.0158 |
| 0.0500 | 0.5208 | -0.9122 | 0.6500 | 0.7421 | 0.0279 |
| 0.0375 | 0.5098 | -0.9591 | 0.6771 | 0.7515 | 0.0679 |
| 0.0271 | 0.4915 | -1.0355 | 0.7000 | 0.7587 | 0.0984 |
| 0.6188 | 0.4863 | -1.0575 | 0.7500 | 0.7728 | 0.1581 |
| 0.0146 | 0.5091 | -0.9606 | 0.7750 | 0.7756 | 0.1828 |
| 0.0125 | 0.5232 | -0.9008 | 0.5000 | * | * |
| 0.0104 | 0.5384 | -0.8367 | 0.8250 | * | * |
| 0.0087 | 0.5490 | -0.7917 | 0.8500 | 0.7947 | 0.2508 |
| 0.0073 | 0.5626 | -0.7340 | 0.8750 | 0.7978 | 0.2639 |
| 0.0060 | 0.5816 | -0.6536 | 0.9000 | 0.8011 | 0.2770 |
| 0.0048 | 0.6052 | -0.5533 | 0.9250 | 0.8027 | 0.2837 |
| 0.0036 | 0.6366 | -0.4205 | 0.9500 | 0.8020 | 0.2308 |
| 0.6026 | 0.6649 | -0.0646 | 0.9750 | 0.7968 | 0.2588 |
| 0.0016 | 0.7205 | 0.0965 | 0.9875 | 0.7910 | 0.2343 |
| 0.0008 | 0.7585 | 0.4361 | 0.9938 | 0.7857 | 0.2117 |
| 0.0002 | 0.8387 | 0.4301 | | | |

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 2 M = 0.676 ALPHA = -2.18 RE = 5700000

| BANK | MACH NO | H (KN/SQ.M) | REYNOLDS | NO |
|------|---------|-------------|----------|----|
| 1 | 0.6772 | 84.69 | 5707000 | |
| 2 | 0.6775 | 84.55 | 5699000 | |
| 3 | 0.6770 | 84.45 | 5690000 | |
| 4 | 0.6774 | 84.55 | 5699000 | |
| | | | | |

| HED | ER SURFAC | E | | | |
|--------|-----------|---------|--------|-----------|---------|
| X/C | P/H | CP | | ER SURFAC | |
| 0.9938 | 0.7794 | 0.1862 | x/C | P/H | CP |
| 0.9875 | 0.7753 | 0.1690 | 0.0000 | 0.9599 | 0.9503 |
| | | | 0.0002 | 0.9073 | 3.7272 |
| 0.9750 | 0.7674 | 0.1356 | 8000.0 | 0.3680 | 0.5609 |
| 0.9500 | 0.7526 | 0.0729 | 0.0016 | 0.8001 | 0.2733 |
| 0.9250 | 0.7398 | 0.0186 | 0.0026 | 0.7634 | 0.1178 |
| 0.9000 | 0.7289 | -0.0276 | 0.0036 | 0.7238 | -0.0500 |
| 0.8750 | 0.7186 | -0.0712 | 0.0048 | 0.6890 | -0.1974 |
| 0.8500 | 0.7105 | -0.1052 | 0.0060 | 0.6631 | -0.3068 |
| 0.8250 | 0.7021 | -0.1411 | 0.0073 | 0.5427 | -0.3934 |
| 0.8000 | 0.6943 | -0.1753 | 0.0067 | 0.6317 | -0.4399 |
| 0.7750 | 0.6870 | -0.2062 | 0.6104 | 0.6211 | -0.4847 |
| 0.7500 | 0.6804 | -0.2343 | 0.0125 | 0.6000 | -0.5402 |
| 0.7000 | 0.6663 | -0.2938 | 0.0146 | 0.5983 | -0.5814 |
| 0.6771 | 0.6609 | -0.3167 | 0.0186 | 0.5870 | -0.6295 |
| 0.6500 | 0.6511 | -0.3581 | 0.0271 | 0.5893 | -0.6237 |
| 0.6196 | 0.6469 | -0.3761 | 0.0375 | 0.5789 | -0.6637 |
| 0.6000 | 0.6438 | -0.3895 | 0.0500 | 0.5732 | -0.6361 |
| 0.5750 | 0.6397 | -0.4065 | 0.0625 | 0.5738 | -0.6836 |
| 0.5500 | 0.6378 | -0.4145 | 0.0750 | 0.5747 | -0.6801 |
| 0.5250 | 0.6368 | -0.4188 | 0.1000 | 0.5744 | -0.6813 |
| 0.5000 | 0.6381 | -0.4134 | 0.1500 | 0.5783 | -0.6645 |
| 0.4750 | 0.6390 | -0.4095 | 0.2000 | 0.5756 | -0.6760 |
| 0.4500 | 0.6428 | -0.3937 | | | |
| 0.4250 | 0.6450 | -0.3840 | 0.2500 | 0.5679 | -0.7087 |
| 0.4000 | 0.6477 | -0.3710 | 0.3000 | 0.5600 | -0.7420 |
| 0.3750 | 0.6510 | -0.3570 | 0.3250 | 0.5560 | -0.7592 |
| 0.3500 | 0.6555 | -0.3377 | 0.3500 | 0.5540 | -0.7676 |
| 0.3250 | 0.6603 | -0.3178 | 0.3750 | 0.5570 | -0.7547 |
| 0.3000 | 0.6639 | -0.3022 | 0.4000 | 0.5667 | -0.7136 |
| 0.2800 | 0.6641 | -0.3017 | 0.4250 | 0.5817 | -0.6501 |
| 0.2500 | 0.6711 | -0.2721 | 0.4500 | 0.5989 | -0.5773 |
| | | | 0.4750 | 0.6157 | -0.5065 |
| 0.2208 | 0.6804 | -0.2325 | 0.5000 | 0.6337 | -0.4319 |
| 0.2000 | 0.6864 | -0.2072 | 0.5250 | 0.6441 | -0.3666 |
| 0.1500 | 0.7019 | -0.1415 | 0.5500 | 0.6650 | -0.2994 |
| 0.1000 | 0.7226 | -0.0540 | 0.5750 | 0.6797 | -0.2371 |
| 0.0750 | 0.7407 | 0.0225 | 0.6000 | 0.6934 | -0.1791 |
| 0.0625 | 0.7524 | 0.0721 | 0.6196 | 0.7026 | -0.1403 |
| 0.0500 | 0.7649 | 0.1251 | 0.6500 | 0.7165 | -0.0813 |
| 0.0375 | 0.7823 | 0.1987 | 0.6771 | 0.7288 | -0.0292 |
| 0.0271 | 0.8021 | 0.2316 | 0.7000 | 0.7379 | 0.0095 |
| 0.0188 | 0.8265 | 0.3849 | 0.7500 | 0.7559 | 0.0857 |
| 0.0146 | 0.8489 | 0.4302 | 0.7150 | 0.7636 | 0.1184 |
| 0.0125 | 0.8623 | 0.5368 | 0.8000 | * | * |
| 0.0104 | 0.8794 | 0.6090 | 0.8250 | * | * |
| 0.0087 | 0.8933 | 0.6681 | 0.6500 | 0.7842 | 0.2056 |
| 0.0073 | 0.9082 | 0.7312 | 0.8750 | 0.7887 | 0.2245 |
| 0.0060 | 0.9248 | 0.8013 | 0.4000 | 0.7931 | 0.2443 |
| 0.0048 | 0.9413 | 0.8712 | 0.9250 | 0.7965 | 0.2585 |
| 0.0036 | 0.9588 | 0.9456 | 0.9500 | 0.7981 | 0.2653 |
| 0.0026 | 0.9734 | 1.0074 | 0.9750 | 0.7963 | 0.2577 |
| 0.0016 | 0.9912 | 1.0825 | 0.9875 | 0.7936 | 0.2462 |
| 80000 | 0.9986 | 1.1141 | 0.9938 | 0.7909 | 0.2347 |
| 0.0002 | 0.9973 | 1.1084 | 3.7730 | , | 0.0011 |
| | | | | | |

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 3 M=0.600 ALPHA=2.57 RE=6300000

| BANK | MACH NU | H(KN/50.M) | REYNOLDS | NO |
|------|---------|------------|----------|----|
| 1 | 0.6010 | 101.78 | 6335000 | |
| 2 | 0.6007 | 102.02 | 6348000 | |
| 3 | 0.6004 | 101.88 | 6337000 | |
| 4 | 0.6005 | 101.83 | 6335000 | |

| UPP | R SURFAC | Ε | 1.0 | WER SURFAC | - |
|--------|----------|---------|--------|------------|---------|
| X/C | P/H | CP | x/C | P/H | CP |
| 0.9938 | 0.8085 | 0.1256 | 0.0000 | 0.9238 | 0.7087 |
| 0.9875 | 0.8059 | 0.1123 | 0.0002 | 0.9736 | 0.9606 |
| 0.9750 | 0.8011 | 0.0882 | 0.0008 | 0.9905 | 1.0455 |
| 0.9500 | 0.7924 | 0.0441 | 0.0016 | 0.9991 | 1.0891 |
| 0.9250 | 0.7813 | -0.0121 | 0.0026 | 0.9980 | 1.0834 |
| 0.9000 | 0.7718 | -0.0603 | 0.0036 | 0.9906 | 1.0464 |
| 0.8750 | 0.7626 | -0.1064 | 0.0048 | 0.9801 | 0.9934 |
| 0.8500 | 0.7539 | -0.1506 | 0.0060 | 0.9693 | 0.9386 |
| 0.8250 | 0.7455 | -0.1932 | 0.0073 | 0.9570 | 0.8766 |
| 0.8000 | 0.7359 | -0.2417 | 0.0087 | 0.9476 | 0.8301 |
| 0.7750 | 0.7274 | -0.2849 | 0.0104 | 0.9363 | 0.7720 |
| 0.7500 | 0.7205 | -0.3197 | 0.0125 | 0.9234 | 0.7070 |
| 0.7000 | 0.7044 | -0.4011 | 0.0146 | 0.9126 | 0.6522 |
| 0.6771 | 0.6901 | -0.4331 | 0.0186 | 0.8968 | 0.5725 |
| 0.6500 | 6.6899 | -0.4797 | 0.0271 | 0.8806 | 0.5311 |
| 0.6196 | 0.6806 | -0.5214 | 0.0375 | 0.8549 | 0.3612 |
| 0.6000 | 0.6756 | -0.5467 | 0.0500 | 0.8336 | 0.2527 |
| 0.5750 | 0.6689 | -0.5809 | 0.0625 | 0.8207 | 0.1877 |
| 0.5500 | 0.6645 | -0.6028 | 0.0750 | 0.8107 | 0.1372 |
| 0.5250 | 0.6596 | -0.6275 | 0.1000 | 0.7945 | 0.0552 |
| 0.5000 | 0.6569 | -0.6412 | 0.1500 | 0.7740 | -0.0483 |
| 0.4750 | 0.6551 | -0.6504 | 0.2000 | 0.7598 | -0.1199 |
| 0.4500 | 0.6533 | -0.6597 | 0.2500 | 0.7462 | -0.1888 |
| 0.4250 | 0.6522 | -0.6652 | 0.3000 | 0.7342 | -0.2497 |
| 0.4000 | 0.6505 | -0.6725 | 0.3250 | 0.7282 | -0.2500 |
| 0.3750 | 0.6488 | -0.6811 | 0.3500 | 0.7234 | -0.3043 |
| 0.3500 | 0.6462 | -0.6840 | 0.3750 | 0.7205 | -0.3187 |
| 0.3250 | 0.6467 | -0.6917 | 0.4000 | 0.7211 | -0.3159 |
| 0.3000 | 0.6459 | -0.6959 | 0.4250 | 0.7243 | -0.2996 |
| 0.2800 | 0.6428 | -0.7113 | 0.4500 | 0.7297 | -0.2723 |
| 0.2500 | 0.6403 | -0.7240 | 0.4750 | 0.7359 | -0.2408 |
| 0.2208 | 0.6405 | -0.7230 | 0.5000 | 0.7434 | -0.2039 |
| 0.2000 | 0.6388 | -0.7316 | 0.5250 | 0.7504 | -0.1684 |
| 0.1500 | 0.6323 | -0.7643 | 0.5500 | 0.7587 | -0.1268 |
| 0.1000 | 0.6250 | -0.8011 | 0.5750 | 0.7665 | -0.0871 |
| 0.0750 | 0.6211 | -0.8210 | 0.6000 | 0.7741 | -0.0488 |
| 0.0625 | 0.6207 | -0.8232 | 0.6196 | 0.7804 | -0.0167 |
| 0.0500 | 0.6219 | -0.8172 | 0.6500 | 0.7872 | 0.0176 |
| 0.0375 | * | * | 0.6771 | 0.7946 | 0.0548 |
| 0.0271 | 0.6020 | -0.9156 | 0.7000 | 0.8003 | 0.0836 |
| 0.0185 | 0.6081 | -0.8846 | 0.7500 | 0.8113 | 0.1394 |
| 0.0146 | 0.5917 | -0.9676 | 0.7750 | 0.8158 | 0.1623 |
| 0.0125 | 0.5895 | -0.9788 | 0.8000 | * | * |
| 0.0104 | 0.5937 | -0.4577 | 0.8250 | * | * |
| 0.0087 | 0.5961 | -0.9456 | 0.8500 | 0.8283 | 0.2254 |
| 0.0073 | 0.5982 | -0.9348 | 0.8750 | 0.8312 | 0.2398 |
| 0.0060 | 0.6138 | -0.8561 | 0.9000 | 0.8340 | 0.2544 |
| 0.0048 | 0.6292 | -0.7784 | 0.9250 | 0.8353 | 0.2610 |
| 0.0036 | 0.6546 | -0.6500 | 0.9500 | 0.8350 | 0.2596 |
| 0.0026 | 0.6783 | -0.5303 | 0.9750 | 0.8302 | 0.2349 |
| 0.0016 | 0.7253 | -0.2932 | 0.9875 | 0.8250 | 0.2089 |
| 0.0008 | 0.7704 | -0.0652 | 0.9938 | 0.8207 | 0.1870 |
| 0.0002 | 0.8295 | 0.2329 | | | |

SURFACE PRESSURE DISTRIBUTION

CASE 6 M=0.725 ALPHA=2.92 RE=6500000

| BANK | MACH NO | H(KN/50.M) | REYNOLUS | NO |
|------|---------|------------|----------|----|
| 1 | 0.7250 | 93.09 | 6537000 | |
| 2 | 0.7261 | 92.05 | 6526000 | |
| 3 | 0.7264 | 92.81 | 6525000 | |
| 4 | 0.1262 | 92.61 | 6509000 | |

| UPPI | ER SURFAC | E | | LOWE | R SURFAC | E |
|--------|-----------|---------|--|-------|----------|---------|
| X/C | P/H | CP | | A/C | P/H | CP |
| 0.9936 | 0.7412 | 0.1432 | 0. | .0000 | 0.9207 | 0.8328 |
| 0.9875 | 0.7383 | 0.1318 | 0. | .0002 | 0.9744 | 1.0396 |
| 0.9750 | 0.7321 | 0.1082 | 0. | 0000 | 0.9914 | 1.1053 |
| 0.9500 | 0.7194 | 0.0592 | 0. | .0016 | 0.9986 | 1.1338 |
| 0.9250 | 0.7070 | 0.0115 | 0. | .0026 | 0.9955 | 1.1223 |
| 0.5000 | 0.0945 | -0.0365 | 0. | .0036 | 0.9854 | 1.0823 |
| 0.8750 | 0.6830 | 8080.6- | 0. | 8400 | 0.9712 | 1.0273 |
| 0.8500 | 0.6703 | -0.1296 | 0. | .000 | 0.9573 | 0.9736 |
| 0.8250 | 0.6506 | -0.1746 | 0. | .0073 | 0.9420 | 0.9148 |
| 0.8000 | 0.6471 | -0.2186 | | .0087 | 0.9305 | 0.8703 |
| 0.7750 | 0.6337 | -0.2702 | 0. | 0104 | 0.9161 | 0.8148 |
| 0.7500 | 0.6252 | -0.3029 | 0. | 0125 | 0.9002 | 0.7537 |
| 0.7000 | 0.6022 | -0.3913 | 0. | 0146 | 0.8858 | 0.6980 |
| 0.6771 | 0.5931 | -0.4263 | 0. | 0186 | 0.8645 | 0.6159 |
| 0.6500 | 0.5797 | -0.4778 | 0. | 0271 | 0.8459 | 0.5444 |
| 0.6196 | 0.5645 | -0.5361 | | 0375 | 0.8095 | 0.4040 |
| 0.6000 | 0.5532 | -0.5798 | 0. | 0500 | 0.7843 | 0.3088 |
| 0.5750 | 0.5279 | -0.6769 | | 0625 | 0.7679 | 0.2454 |
| 0.5500 | 0.4664 | -0.9137 | | 0750 | 0.7542 | 0.1926 |
| 0.5250 | 0.3867 | -1.2201 | | 1000 | 0.7312 | 0.1042 |
| 0.5000 | 0.3577 | -1.2164 | | 1500 | 0.7020 | -0.0081 |
| 0.4750 | 0.3910 | -1.2036 | | 2000 | 0.6797 | -0.0940 |
| 0.4500 | 0.3935 | -1.1940 | | 2500 | 0.6585 | -0.1754 |
| 0.4250 | 0.3966 | -1.1519 | | 3000 | 0.6390 | -0.2506 |
| 0.4000 | 0.4047 | -1.1501 | | 3250 | 0.6286 | -0.2904 |
| 0.3750 | 0.4056 | -1.1490 | | 3500 | 0.6206 | -0.3214 |
| 0.3500 | 0.4112 | -1.1273 | | 3750 | 0.6156 | -0.3406 |
| 0.3250 | 0.4139 | -1.1168 | | 4000 | 0.6157 | -0.3403 |
| 0.3000 | 0.4159 | -1.1091 | | 4250 | 0.6211 | -0.3194 |
| 0.2800 | 0.4151 | -1.1010 | | 4500 | 0.6293 | -0.2881 |
| 0.2500 | 0.4252 | -1.0736 | | 4750 | 0.6399 | -0.2469 |
| 0.2208 | 0.4324 | -1.0456 | | 5000 | 0.6499 | -0.2079 |
| 0.2000 | 0.4330 | -1.0433 | | 5250 | 0.6608 | -0.1657 |
| 0.1500 | 0.4418 | -1.0096 | | 5500 | 0.6735 | -0.1169 |
| 0.1000 | 0.4472 | -0.9886 | | 5750 | 0.6849 | -0.0731 |
| 0.0750 | 0.4331 | -1.0432 | | 6000 | 0.6961 | -0.0301 |
| 0.0625 | 0.4223 | -1.0730 | | 6196 | 0.7038 | -0.0003 |
| 0.0500 | 0.4203 | -1.0923 | | 6500 | 0.7151 | 0.0431 |
| 0.0375 | 0.4230 | -1.0820 | | 6771 | 0.7256 | 0.0836 |
| 0.0271 | 0.4342 | -1.0435 | | 7000 | 0.7334 | 0.1134 |
| 0.0188 | 0.4361 | -1.0362 | | 7500 | 0.7459 | 0.1731 |
| 0.0146 | 0.4661 | -0.9204 | | 7750 | 0.7556 | 0.1988 |
| 0.0146 | 0.4797 | -0.8680 | | 8000 | * | * |
| 0.0125 | 3.4962 | -0.8041 | | 8250 | * | * |
| 0.0087 | 0.5062 | -3.7658 | | 8500 | 0.7720 | 0.2618 |
| | 0.5168 | -0.7250 | | 8750 | 0.7761 | 0.2778 |
| 0.0073 | 0.5422 | -0.6269 | | 9000 | 0.7796 | 0.2907 |
| 0.0060 | | -0.5309 | | 9250 | 0.7812 | 0.2972 |
| 0.0048 | 0.5671 | -0.4667 | | 7500 | 0.7804 | 0.2937 |
| 0.036 | 0.5837 | -0.4001 | | 9750 | 0.7736 | 0.2676 |
| 0.0026 | 0.6335 | | | 9875 | 0.7603 | 0.2396 |
| 0.0016 | 0.6913 | 0.1042 | | 9938 | 0.7578 | 0.2146 |
| 8000.0 | 0.7318 | | THE RESERVE OF THE PARTY OF THE | ,,,,, | 301370 | 0.2140 |
| 0.0002 | 0.8142 | 0.4219 | | | | |

SURFACE PRESSURE DISTRIBUTION

CASE 7 M=0.725 ALPHA=2.55 KE=6500000

| BAHK | MACH NO | H(KN/SQ.M) | REYNOLDS | NO |
|------|---------|------------|----------|----|
| 1 | 0.7257 | 94.09 | 6611000 | |
| 2 | 0.7262 | 93.85 | 6597000 | |
| 3 | 0.7258 | 93.17 | 6547000 | |
| 4 | 0.7256 | 93.32 | 6556000 | |

| 0440 | K SURFACE | E | | 1.0% | ER SURFAC | £: |
|--------|-----------|---------|---|--------|-----------|---------|
| X/C | P/H | CP | | x/C | P/H | CP |
| 0.9938 | 0.7435 | 0.1506 | | 0.000 | 0.9374 | 0.8976 |
| 0.9875 | 0.7400 | 0.1372 | | 0.0002 | 0.9829 | 1.0728 |
| 0.9750 | 0.7343 | 0.1150 | | 0.0008 | 0.9957 | 1.1224 |
| 0.9500 | 0.7225 | 0.0699 | | 0.0016 | 0.9977 | 1.1298 |
| 0.9250 | 0.7093 | 0.0189 | | 0.0026 | 0.9919 | 1.1074 |
| 0.9000 | 0.6973 | -0.0272 | | 0.0036 | 0.9765 | 1.0558 |
| 0.0750 | 0.6842 | -0.0779 | | 0.0048 | * | * |
| 0.6500 | 0.6720 | +0.1248 | | 0.0060 | 0.9466 | 0.9331 |
| 0.8250 | 0.65+5 | -0-1731 | | 0.0073 | 0.9305 | 0.8712 |
| 0.0000 | 0.0453 | -0.2251 | 4 | 0.0087 | 0.9176 | 0.8213 |
| 0.7750 | 0.0341 | -0.2702 | | 0.0104 | 0.9028 | 0.7646 |
| 0.7500 | 0.6226 | -0.3143 | | 0.0125 | 0.8861 | 0.7002 |
| 0.7000 | 0.5990 | -0.4051 | | 0.0146 | 0.8715 | 0.6439 |
| 0.6771 | 0.5889 | -0.4441 | | 0.0186 | 0.8502 | 0.5619 |
| 0.6500 | 0.5756 | -0.4955 | | 0.0271 | 0.8261 | 0.4689 |
| 0.6196 | 0.5631 | -0.5436 | | 0.0375 | 0.7948 | 0.3487 |
| 0.6000 | 0.5560 | -0.5710 | | 0.0500 | 0.7717 | 0.2603 |
| 0.5750 | 0.5460 | -0.6095 | | 0.0625 | 0.7554 | 0.1978 |
| 0.5500 | 0.5299 | -0.6712 | | 0.0750 | 0.7419 | 0.1460 |
| 0.5250 | 0.4677 | -0.9107 | | 0.1000 | 0.7196 | 0.0600 |
| 0.5000 | 0.4131 | -1.1210 | | 0.1500 | 0.6915 | -0.0482 |
| 0.4750 | 0.4159 | -1.1104 | | 0.2000 | * | * |
| 0.4500 | 0.4209 | -1.0911 | | 0.2500 | 0.6492 | -0.2110 |
| 0.4250 | 0.4228 | -1.0836 | | 0.3000 | 0.6296 | -0.2863 |
| 0.4000 | 0.4289 | -1.0586 | | 0.3250 | 0.6193 | -0.3259 |
| 0.3750 | 0.4330 | -1.0428 | | 0.3500 | 0.6123 | -0.3528 |
| 0.3500 | 0.4360 | -1.0312 | | 0.3750 | 0.6066 | -0.3747 |
| 0.3250 | 0.4378 | -1.0244 | | 0.4000 | 0.6072 | -0.3725 |
| 0.3000 | 0.4374 | -1.0258 | | 0.4250 | 0.6135 | -0.3481 |
| 0.2800 | 0.4378 | -1.0243 | | 0.4500 | 0.6222 | -0.3146 |
| 0.2500 | 0.4437 | -1.0017 | | 0.4750 | 0.6338 | -0.2700 |
| 0.2208 | 0.4505 | -0.9756 | | 0.5000 | 0.6454 | -0.2267 |
| 0.2000 | 0.4501 | -0.9771 | | 0.5250 | 0.6570 | -0.1818 |
| 0.1500 | 0.4528 | -0.7549 | | 0.5500 | 0.6649 | -0.1323 |
| 0.1000 | 0.4769 | -0.8737 | | 0.5750 | 0.6821 | -0.0852 |
| 0.0750 | 0.4917 | -0.8169 | | 0.6000 | 0.6938 | -0.0403 |
| 0.0625 | 0.4770 | -0.8734 | | 0.6196 | * | * |
| 0.0500 | 0.4485 | -0.9833 | | 0.6500 | 0.7132 | 0.0346 |
| 0.0375 | 0.4394 | -1.0183 | | 0.6771 | 0.7241 | 0.0766 |
| 0.0271 | 0.4696 | -0.9037 | | 0.7000 | 0.7319 | 0.1064 |
| 0.0188 | 0.4660 | -0.9178 | | 0.7500 | 0.7476 | 0.1670 |
| 0.0146 | 0.4928 | -0.8145 | | 0.7750 | 0.7543 | 0.1926 |
| 0.0125 | 0.5001 | -0.7554 | | 0.3000 | * | * |
| 0.0104 | 0.5259 | -0.6870 | | 0.8250 | * | * |
| 0.0087 | 0.5371 | -0.6438 | | 0.8500 | 0.7710 | 0.2571 |
| 0.0073 | 0.5409 | -0.5985 | | 0.8750 | 0.7754 | 0.2738 |
| 0.0060 | 0.5746 | -0.4995 | | 0.9000 | 0.7797 | 0.2900 |
| 0.0048 | 0.5936 | -0.4069 | | 0.9250 | 0.7813 | 0.2960 |
| 0.0036 | 0.6321 | -0.2782 | | 0.9500 | 0.7608 | 0.2942 |
| 0.0026 | 0.6638 | -0.1562 | | 0.9750 | 0.7742 | 0.2690 |
| 0.0016 | 0.7216 | 0.0665 | | 0.9875 | * | * |
| 0.0008 | 0.7599 | 0.2141 | | 0.9938 | 0.7612 | 0.2188 |
| 0.0002 | 0.8400 | 0.5227 | | | | |
| | | | | | | |

SURFACE PRESSURE DISTRIBUTION

CASE 8 M=0.728 ALPHA=3.22 RE=6500000

| BANK | MACH NO | H (KN/50.M) | REYNOLDS | NO |
|------|---------|-------------|----------|----|
| 1 | 0.7291 | 94.08 | 6628000 | |
| 2 | 0.7286 | 94.08 | 6625000 | |
| 3 | 0.7293 | 94.16 | 6636000 | |
| 4 | 0.7205 | 94.08 | 6625000 | |

| UEPE | ER SURFAC | E | 10 | WER SURFAC | F |
|----------|-----------|---------|--------|------------|---------|
| X/C | P/H | CP | ٨/٥ | P/d | СР |
| 0.9938 | 0.7397 | 0.1424 | 0.0000 | | 0.7970 |
| 0.9875 | 0.7366 | 0.1307 | 0.0002 | | 1.0194 |
| 0.9750 | 0.7308 | 0.1084 | 0.000 | | 1.0949 |
| 0.9500 | 0.7158 | 0.0623 | 0.0016 | | 1.1350 |
| 0.9250 | 0.7070 | 0.0171 | 0.0026 | | 1.1295 |
| 0.9000 | 0.6956 | -0.0264 | 0.036 | | 1.0969 |
| 0.8750 | 0.6641 | -0.0706 | 0.0048 | | 1.0483 |
| 0.3500 | 0.6725 | -0.1149 | 0.0060 | | 0.9987 |
| 0.8250 | 0.6639 | -0.1594 | 0.007 | | 0.9430 |
| 0.3000 | 0.0401 | -0.2063 | 0.008 | | 0.9000 |
| 0.7750 | J.6355 | -0.2494 | 0.0104 | | * |
| 0.7500 | 0.6250 | -0.2945 | 0.0125 | | 0.7874 |
| 0.7000 | 0.5994 | -0.3926 | 0.0146 | 0.8939 | 0.7338 |
| 0.6171 | 0.5004 | -0.4349 | 0.0186 | 0.3728 | 0.6531 |
| 0.6500 | 0.5712 | -0.5007 | 0.0271 | 0.8473 | 0.5557 |
| 0.6196 | 0.5504 | -0.5300 | 0.0375 | 0.9160 | 0.4358 |
| 0.6000 | 0.5340 | -0.6428 | 0.0500 | 0.7909 | 0.3369 |
| 0.5750 | 0.4905 | -0.7787 | 0.0625 | 0.7739 | 0.2738 |
| 0.5500 | 0.3929 | -1.1829 | 0.0750 | 0.7599 | 0.2201 |
| 0.5250 | 0.3558 | -1.3132 | 0.1000 | 0.7365 | 0.1305 |
| 0.5000 | 0.3654 | -1.2582 | 0.1500 | 0.7065 | 0.0155 |
| 0.4750 | 0.3711 | -1.2661 | 0.2000 | 0.6840 | -0.0705 |
| 0.4500 | 0.3750 | -1.2514 | 0.2500 | 0.6619 | -0.1551 |
| 0.4250 | 0.3804 | -1.2305 | 0.3000 | 0.6419 | -0.2321 |
| 0.4000 | 0.3851 | -1.2155 | 0.3250 | 0.6312 | -0.2728 |
| 0.3750 | 0.3094 | -1.1990 | 0.3500 |) * | * |
| 0.3500 | 0.3931 | -1.1851 | 0.3750 | 0.6176 | -0.3252 |
| 0.3250 | 0.3969 | -1.1706 | 0.4000 | 0.6172 | -0.3264 |
| 0.3000 | 0.4000 | -1.1550 | 0.4250 | | -0.3055 |
| 0.2800 | 0.4018 | -1.1510 | 0.4500 | | -0.2763 |
| 0.2500 | 0.4019 | -1.1282 | 0.4750 | | -0.2359 |
| 0.2205 | 0.4164 | -1.0957 | 0.5000 | | -0.1368 |
| 0.2000 | 0.4107 | -1.0947 | 0.5250 | | -0.1466 |
| 0.1500 | 0.4178 | -1.0904 | 0.5500 | | -0.0995 |
| 0.1000 | 0.4220 | -1.0744 | 0.5750 | | -0.0570 |
| 0.0750 | 0.4107 | -1.1175 | 0.6000 | | -0.0145 |
| 0.0625 | 0.4115 | -1.1133 | 0.6196 | | 0.0155 |
| 0.0506 | 0.4093 | -1.1209 | 0.6500 | | 0.0568 |
| 0.0375 | 0.4007 | -1.1558 | 0.6771 | | 0.0922 |
| 0.0271 | 0.4035 | -1.1432 | 0.7000 | | 0.1246 |
| 0.0100 | 0.4232 | -1.0676 | 0.1500 | | 0 2002 |
| 0.0146 | 0.4501 | -0.9648 | 0.7750 | | 0.2083 |
| 0.0125 | 0.4626 | -0.9170 | 0.3000 | | * |
| 0.0104 | 0.4777 | -0.8592 | 0.8250 | | |
| 0.0037 | 0.4672 | -0.7808 | 0.8500 | | 0.2693 |
| 0.0073 | 0.4981 | -0.6814 | 0.8750 | | 0.2842 |
| 0.000 | 0.5458 | -0.5870 | 0.9000 | | 0.2974 |
| 0.0048 | 0.5845 | -0.4580 | 0.9500 | | 0.2988 |
| 0.0026 | 0.0147 | -0.4380 | 0.9750 | | 0.2713 |
| 0.0026 | 0.6749 | -0.1041 | 0.9875 | | 0.2439 |
| 0.0008 | 0.0149 | 0.0490 | 0.9973 | | 0.2174 |
| 0.0002 | 0.7957 | 0.3690 | 0.7738 | 0.1372 | 0.2114 |
| J. (1002 | 0.1751 | 0.30,0 | | | |

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 9 M=0.730 ALPHA=3.19 RE=6500000

| BANK | MACH NO | H(KN/50.M) | REYNOLDS | NU |
|------|---------|------------|----------|----|
| 1 | 0.7307 | 89.59 | 6519000 | |
| 2 | 0.7322 | 90.07 | 6511000 | |
| 3 | 0.7290 | 90.41 | 6519000 | |

| | R SURFAC | | | LOWER SURFACE | |
|--------|----------|---------|------|--|---------|
| X/C | P/H | CP | X/ | | СР |
| 0.9937 | 0.7374 | 0.1347 | 0.00 | | 0.7963 |
| 0.9875 | 0.7344 | 0.1232 | 0.00 | The second secon | 1.0157 |
| 0.9750 | 0.7286 | 0.1012 | 0.00 | | 1.0912 |
| 0.9500 | 0.7171 | 0.0570 | 0.00 | | 1.1315 |
| 0.9250 | 0.7052 | 0.0114 | 0.00 | | 1.1257 |
| 0.9000 | 0.6937 | -0.0325 | 0.00 | | 1.0944 |
| 0.8750 | 0.6823 | -0.0760 | 0.00 | | 1.0467 |
| 0.8500 | 0.6702 | -0.1226 | 0.00 | | 0.9971 |
| 0.8250 | 0.6590 | -0.1654 | 0.00 | | |
| 0.8000 | 0.6472 | -0.2103 | 0.00 | | 0.8967 |
| 0.7750 | 0.6360 | -0.2535 | 0.01 | | 0.8441 |
| 0.7500 | 0.6243 | -0.2983 | 0.01 | | 0.7849 |
| 0.7000 | 0.5999 | -0.3915 | 0.01 | | 0.7309 |
| 0.6771 | 0.5880 | -0.4370 | 0.01 | | 0.6501 |
| 0.6500 | 0.5729 | -0.4949 | 0.02 | | 0.5652 |
| 0.6196 | 0.5538 | -0.5681 | 0.03 | | 0.4393 |
| 0.6000 | 0.5336 | -0.6338 | 0.05 | | 0.3447 |
| 0.5750 | 0.5017 | -0.7552 | 0.06 | | 0.2776 |
| 0.5500 | 0.4045 | -1.1249 | 0.07 | | 0.2263 |
| 0.5250 | 0.3560 | -1.3097 | 0.10 | | * |
| 0.5000 | 0.3624 | -1.2853 | 0.15 | | 0.0203 |
| 0.4750 | 0.3692 | -1.2593 | 0.20 | | -0.0641 |
| 0.4500 | 0.3737 | -1.2420 | 0.25 | | -0.1462 |
| 0.4250 | 0.3772 | -1.2290 | 0.30 | | -0.2246 |
| 0.4000 | 0.3826 | -1.2085 | 0.32 | | -0.2635 |
| 0.3750 | 0.3870 | -1.1917 | 0.35 | 00 0.6223 | -0.2960 |
| 0.3500 | 0.3920 | -1.1727 | 0.37 | | -0.3162 |
| 0.3250 | 0.3938 | -1.1658 | 0.40 | | -0.3187 |
| 0.3000 | 0.3970 | -1.1535 | 0.42 | | -0.2987 |
| 0.2792 | * | * | 0.45 | | -0.2673 |
| 0.2500 | 0.4082 | -1.1110 | 0.47 | | -0.2292 |
| 0.2208 | 0.4140 | -1.0890 | 0.50 | | -0.1836 |
| 0.2000 | 0.4154 | -1.0834 | 0.52 | | -0.1441 |
| 0.1500 | 0.4116 | -1.0981 | 0.55 | | -0.0971 |
| 0.1000 | 0.4018 | -1.1123 | 0.57 | 50 0.6864 | -0.0522 |
| 0.0750 | 0.3946 | -1.1697 | 0.60 | 0.6972 | -0.0108 |
| 0.0625 | 0.3926 | -1.1771 | 0.61 | | 0.0168 |
| 0.0500 | 0.3873 | -1.1973 | 0.65 | | 0.0594 |
| 0.0375 | 0.3934 | -1.1741 | 0.67 | 71 * | * |
| 0.0271 | 0.4611 | -0.9157 | 0.70 | 00 0.7335 | 0.1200 |
| 0.0187 | 0.4275 | -1.0439 | 0.75 | 00 0.7488 | 0.1786 |
| 0.0146 | 0.4493 | -0.9608 | 0.11 | | 0.2038 |
| 0.0125 | 0.4623 | -0.9113 | 0.80 | | 0.2281 |
| 0.0104 | 0.4765 | -0.8572 | 0.82 | | 0.2471 |
| 0.0087 | 0.4863 | -0.8198 | 0.85 | 00 0.7716 | 0.2657 |
| 0.0073 | 0.5000 | -0.7675 | 0.87 | | 0.2792 |
| 0.0060 | 0.5222 | -0.6827 | 0.90 | | 0.2917 |
| 0.0047 | 0.5477 | -0.5852 | 0.92 | | 0.2965 |
| 0.0036 | 0.5803 | -0.4609 | 0.95 | | 0.2922 |
| 0.0025 | 0.6134 | -0.3348 | 0.97 | | 0.2640 |
| 0.0015 | 0.6729 | -0.1075 | 0.98 | 75 0.7644 | 0.2381 |
| 0.0007 | 0.7139 | 0.0491 | 0.99 | 37 0.7571 | 0.2100 |
| 0.0002 | 0.7996 | 0.3761 | | | |
| | | | | | |

SURFACE PRESSURE DISTRIBUTION

| CASE 10 M=0.750 ALPHA=3.19 RE=6200 | 000 | 0000 | 20 | F=6 | RF | 19 | = 3. | AL PHA | 750 | M=0. | 10 | CASE | |
|------------------------------------|-----|------|----|-----|----|----|------|--------|-----|------|----|------|--|
|------------------------------------|-----|------|----|-----|----|----|------|--------|-----|------|----|------|--|

| BANK | MACH NO | H(KN/SQ.M) | REYNOLDS | NO |
|------|---------|------------|----------|----|
| 1 | 0.7502 | 85.11 | 6335000 | |
| 2 | 0.7491 | 84.97 | 6270000 | |
| 3 | 0.7510 | 84.77 | 6239000 | |

| UPPE | R SURFAC | Ε | LGW | ER SURFAC | E |
|--------|----------|--------------------|--------|-----------|---------|
| X/C | P/H | Ch | X/C | P/H | CP |
| 0.9937 | 0.6988 | 0.0399 | 0.0000 | 0.9277 | 0.8821 |
| 0.9875 | 0.6952 | 0.0305 | 0.0002 | 0.9773 | 1.0652 |
| 0.9750 | 0.6916 | 0.0134 | 0.0007 | 0.9925 | 1.1212 |
| 0.9500 | 0.6820 | -0.0218 | 0.0015 | 0.9972 | 1.1386 |
| 0.9250 | 0.6745 | -0.0495 | 0.0025 | 0.9927 | 1.1219 |
| 0.9000 | 0.6623 | -0.0944 | 0.0036 | 0.9809 | 1.0785 |
| 0.5150 | 0.6516 | -0.1338 | 0.0047 | 0.9650 | 1.0199 |
| 0.8500 | 0.6390 | -0.1801 | 0.0060 | 0.9504 | 0.9659 |
| 0.8250 | 0.6281 | -0.2202 | 0.0073 | 0.9341 | 0.9057 |
| 0.8000 | 0.6155 | -0.2668 | 0.0087 | 0.9215 | 0.8594 |
| 0.7750 | 0.6036 | -0.3106 | 0.0104 | 0.9068 | 0.8053 |
| 0.7500 | 0.5916 | -0.3545 | 0.0125 | 0.8902 | 0.7438 |
| 0.7000 | 0.5676 | -0.4431 | 0.0146 | 0.8755 | 0.6896 |
| 0.6771 | 0.5572 | -0.4814 | 0.0186 | 0.8544 | 0.6120 |
| 0.6500 | 0.5446 | -0.5279 | 0.0271 | 0.8325 | 0.5311 |
| 0.6196 | 0.5295 | -0.5834 | 0.0375 | 0.7971 | 0.4005 |
| 0.6000 | 0.5186 | -0.6301 | 0.0500 | 0.7722 | 0.3089 |
| 0.5750 | 0.4890 | -0.7394 | 0.0625 | 0.7543 | 0.2427 |
| 0.5500 | 0.4002 | -1.0674 | 0.0750 | 0.7403 | 0.1914 |
| 0.5250 | 0.3477 | -1.2612 | 0.1000 | 0.7160 | 0.1016 |
| 0.5000 | 0.3532 | -1.2412 | 0.1500 | 0.6862 | -0.0109 |
| 0.4750 | 0.3602 | -1.2150 | 0.2000 | 0.6627 | -0.0977 |
| 0.4500 | 0.3663 | -1.1927 | 0.2500 | 0.6398 | -0.1859 |
| 0.4250 | 0.3735 | -1.1660 | 0.3000 | 0.6163 | -0.2692 |
| 0.4000 | 0.3774 | -1.1515 | 0.3250 | 0.6043 | -0.3133 |
| 0.3750 | 0.3829 | -1.1314 | 0.3500 | 0.5944 | -0.3501 |
| 0.3500 | 0.3888 | -1.1096 | 0.3750 | 0.5881 | -0.3734 |
| 0.3250 | 0.3909 | -1.1016 | 0.4000 | 0.5867 | -0.3785 |
| 0.3000 | 0.3958 | -1.0836 | 0.4250 | 0.5934 | -0.3537 |
| 0.2192 | * | * | 0.4500 | 0.6086 | -0.2977 |
| 0.2500 | 0.4072 | -1.0414 | 0.4750 | 0.6149 | -0.2743 |
| 0.2208 | 0.4159 | -1.0096 | 0.5000 | 0.6276 | -0.2275 |
| 0.2000 | 0.4190 | -0.9979 | 0.5250 | 0.6398 | -0.1822 |
| 0.1500 | 0.4198 | -0.9948 | 0.5500 | 0.6531 | -0.1330 |
| 0.1000 | 0.4230 | -3.9831 | 0.5750 | 0.6659 | -0.0859 |
| 0.0750 | 0.4089 | -1.0304 | 0.6000 | 0.6777 | -0.0421 |
| 0.0625 | 0.4019 | -1.0566 | 0.6196 | 0.6859 | -0.0120 |
| | | -1.0896 | 0.6500 | 0.6975 | 0.0310 |
| 0.0375 | 0.3957 | -1.0791 -0.7120 | 0.6771 | * | * |
| 0.0187 | 0.4569 | -0.7120 | 0.7000 | 0.7161 | 0.1037 |
| 0.0146 | 0.4718 | -0.7986 | 0.7500 | 0.7322 | 0.1630 |
| 0.0125 | 0.4820 | -0.7611 | 0.7750 | 0.7388 | 0.1875 |
| 0.0104 | 0.5056 | -0.6741 | 0.8000 | 0.7453 | 0.2112 |
| 0.0087 | 0.5152 | -0.6388 | 0.8250 | 0.7502 | 0.2295 |
| 0.0073 | 0.5290 | -0.5879 | 0.3500 | 0.7548 | 0.2464 |
| 0.0060 | 0.5514 | -0.5053 | 0.8750 | 0.7582 | 0.2586 |
| 0.0047 | 0.5770 | -0.4109 | 0.9000 | 0.7610 | 0.2690 |
| 0.0036 | 0.6077 | -0.2901 | 0.9250 | 0.7584 | 0.2595 |
| 0.0025 | 0.6433 | -0.1664 | 0.9750 | 0.7475 | 0.2193 |
| 0.0015 | 0.7022 | 0.0506 | 0.9130 | 0.7365 | |
| 0.0007 | 0.7421 | 0.1981 | 0.9937 | 0.7262 | 0.1789 |
| 0.0002 | 0.8258 | 0.5064 | 0.9931 | 0.1202 | 0.1410 |
| 0.0002 | 0.0220 | 0.7004 | | | |

SURFACE PRESSURE DISTRIBUTION

CASE 12 M=0.730 ALPHA=3.19 RE=2700000

| BANK | MACH NO | H(KN/SQ.M) | REYNOLDS | NO |
|------|---------|------------|----------|----|
| 1 | 0.7286 | 36.24 | 2708000 | |
| 2 | 0.7294 | 36.34 | 2715000 | |
| 3 | 0.7280 | 36.53 | 2723000 | |

| UPPE | R SURFAC | E | | | | |
|--------|----------|---------|----|------|-----------|---------|
| X/C | P/H | CP | | | R SURFACE | |
| 0.9937 | 0.7274 | 0.0943 | | 1/6 | P/H | CP |
| 0.9875 | 0.7258 | 0.0878 | | 0000 | 0.9129 | 0.8063 |
| 0.9750 | 0.7223 | 0.0747 | | 0002 | 0.9690 | 1.0211 |
| 0.9500 | 0.7130 | 0.0390 | | 0007 | 0.9880 | 1.0939 |
| 0.9250 | 0.7044 | 0.0060 | | 0015 | 0.9975 | 1.1303 |
| 0.9000 | 0.6945 | -0.0319 | | 0025 | 0.9954 | 1.1221 |
| 0.8750 | 0.6834 | -0.0748 | | 036 | 0.9864 | 1.0878 |
| 0.8500 | 0.6715 | -0.1202 | | 0047 | 0.9731 | 1.0368 |
| 0.6250 | 0.6619 | -0.1570 | | 0060 | 0.9601 | 0.9868 |
| 0.8000 | 0.6494 | -0.2052 | | 0073 | 0.9455 | 0.9312 |
| 0.7750 | 0.6383 | -0.2478 | | 0087 | 0.9332 | 0.8338 |
| 0.7500 | 0.6285 | -0.2851 | | 0104 | 0.9195 | 0.8313 |
| 0.7000 | 0.6045 | -0.3773 | | 0125 | 0.9035 | 0.7701 |
| 0.6771 | 0.5951 | -0.4135 | | 0146 | 0.8899 | 0.7180 |
| 0.6500 | 0.5830 | -0.4597 | | 0186 | 0.8696 | 0.6402 |
| 0.6196 | 0.5709 | -0.5062 | | 0271 | 0.8458 | 0.5489 |
| 0.6000 | 0.5597 | -0.5442 | | 0375 | 0.8129 | 0.4232 |
| 0.5/50 | 0.5502 | -0.5805 | | 0500 | 0.7867 | 0.3227 |
| 0.5500 | 0.5395 | -0.6213 | | 0625 | 0.7693 | 0.2561 |
| 0.5250 | 0.5218 | -0.6892 | | 0750 | 0.7571 | 0.2091 |
| 0.5000 | 0.4724 | -0.8781 | | 1000 | 0.7355 | 0.1263 |
| 0.4750 | 0.4095 | -1.1188 | | 1500 | 0.7027 | 0.0028 |
| 0.4500 | 0.3936 | -1.1795 | | 2000 | 0.6801 | -0.0834 |
| 0.4250 | 0.3932 | -1.1812 | | 2500 | 0.6591 | -0.1640 |
| 0.4000 | 0.3961 | -1.1700 | | 3000 | 0.6381 | -0.2441 |
| 0.3750 | 0.3985 | -1.1610 | | 3250 | 0.6281 | -0.2826 |
| 0.3500 | 0.4028 | -1.1444 | | 3500 | 0.6198 | -0.3144 |
| 0.3250 | 0.4027 | -1.1448 | | 3750 | 0.6141 | -0.3362 |
| 0.3000 | 0.4058 | -1.1329 | | 4000 | 0.6139 | -0.3370 |
| 0.2792 | * | * | | 4250 | 0.6187 | -0.3185 |
| 0.2500 | 0.4152 | -1.0971 | | 4500 | 0.6270 | -0.2368 |
| 0.2208 | 0.4222 | -1.0701 | | 4/50 | 0.6369 | -0.2488 |
| 0.2000 | 0.4233 | -1.0661 | | 5000 | 0.6489 | -0.2031 |
| 0.1500 | 0.4204 | -1.0771 | | 5250 | 0.6599 | -0.1508 |
| 0.1000 | 0.4172 | -1.0893 | | 5500 | 0.6719 | -0.1151 |
| 0.0750 | 0.3988 | -1.1635 | | 5/50 | 0.6832 | -0.0716 |
| 0.0625 | 0.3907 | -1.1944 | | 0000 | 0.6939 | -0.0306 |
| 0.0500 | 0.3850 | -1.2163 | | 6196 | 0.7012 | -0.0028 |
| 0.0375 | 0.3899 | -1.1976 | | 6500 | 0.7125 | 0.0405 |
| 0.0271 | 0.4652 | -0.9091 | | 6/71 | 0.7224 | 0.0782 |
| 0.0187 | 0.4318 | -1.0371 | | 7000 | 0.7289 | 0.0997 |
| 0.0146 | 0.4519 | -0.9603 | | 7500 | 0.7443 | 0.1590 |
| 0.0125 | 0.4654 | -0.9085 | | 7750 | 0.7510 | 0.1846 |
| 0.0104 | 0.4800 | -0.8524 | | 0009 | 0.7562 | 0.2045 |
| 0.0087 | 0.4912 | -0.8097 | | 8250 | 0.7617 | 0.2256 |
| 0.0073 | 0.5049 | -0.7571 | | 8500 | 0.7657 | 0.2410 |
| 0.0060 | 0.5271 | -0.6718 | | 8750 | 0.7691 | 0.2542 |
| 0.0047 | 0.5528 | -0.5736 | | 9000 | 0.7714 | 0.2627 |
| 0.0036 | 0.5849 | -0.4504 | | 9250 | 0.7729 | 0.2687 |
| 0.0025 | 0.6185 | -0.3219 | | 9500 | 0.7713 | 0.2623 |
| 0.0015 | 0.6779 | -0.0941 | | 9750 | 0.7633 | 0.2318 |
| 0.0007 | 0.7188 | 0.0626 | | 9875 | 0.7546 | 0.1983 |
| 0.0002 | 0.8050 | 0.3926 | 0. | 9937 | 0.7482 | 0.1737 |
| | | | | | | |

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 13 M=0.745 ALPHA=3.19 RE=2700000

| BANK | MACH NO | H(KN/SQ.M) | REYNULDS | NO |
|------|---------|------------|----------|----|
| 1 | 0.7428 | 37.55 | 2710000 | |
| 2 | 0.7460 | 37.31 | 2693000 | |
| 3 | 0.7468 | 36.83 | 2667000 | |

| UPPI | ER SURFAC | E | LOV | NER SURFAC | E |
|--------|-----------|---------|--------|------------|---------|
| X/C | P/H | CP | X/C | P/H | CP |
| 0.9937 | 0.7102 | 0.0727 | 0.0000 | 0.9245 | 0.8636 |
| 0.9875 | 0.7084 | 0.0658 | 0.0002 | 0.9755 | 1.0543 |
| 0.9750 | 0.7044 | 0.0509 | 0.0007 | 0.9913 | 1.1134 |
| 0.9500 | 0.6962 | 0.0207 | 0.0015 | 0.9972 | 1.1352 |
| 0.9250 | 0.6876 | -0.0112 | 0.0025 | 0.9933 | 1.1208 |
| 0.9000 | 0.6789 | -0.0435 | 0.0036 | 0.9824 | 1.0800 |
| 0.8750 | 0.6696 | -0.0781 | 0.0047 | 0.9672 | 1.0233 |
| 0.8500 | 0.6593 | -0.1163 | 0.0060 | 0.9529 | 0.9698 |
| 0.8250 | 0.6495 | -0.1527 | 0.0073 | 0.9374 | 0.9117 |
| 0.8000 | 0.6393 | -0.1903 | 0.0087 | 0.9242 | 0.8626 |
| 0.7750 | 0.6291 | -0.2282 | 0.0104 | 0.9069 | 0.7978 |
| 0.7500 | 0.6182 | -0.2687 | 0.0125 | 0.8935 | 0.7478 |
| 0.7000 | 0.5961 | -0.3505 | 0.0146 | 0.8785 | 0.6919 |
| 0.6771 | 0.5852 | -0.3910 | 0.0186 | 0.8576 | 0.6139 |
| 0.6500 | 0.5720 | -0.4401 | 0.0271 | 0.8336 | 0.5242 |
| 0.6196 | 0.5556 | -0.5010 | 0.0375 | 0.8004 | 0.4002 |
| 0.6000 | 0.5417 | -0.5550 | 0.0500 | 0.7735 | 0.2998 |
| 0.5750 | 0.5174 | -0.6453 | 0.0625 | 0.7560 | 0.2343 |
| 0.5500 | 0.4558 | -0.8741 | 0.0750 | 0.7424 | 0.1834 |
| 0.5250 | 0.3645 | -1.2131 | 0.1000 | 0.7197 | 0.0988 |
| 0.5000 | 0.3660 | -1.2075 | 0.1500 | 0.6875 | -0.0136 |
| 0.4750 | 0.3773 | -1.1654 | 0.2000 | 0.6642 | -0.0999 |
| 0.4500 | 0.3807 | -1.1528 | 0.2500 | 0.6417 | -0.1838 |
| 0.4250 | 0.3787 | -1.1604 | 0.3000 | 0.6193 | -0.2667 |
| 0.4000 | 0.3836 | -1.1419 | 0.3250 | 0.6079 | -0.3092 |
| 0.3750 | 0.3879 | -1.1261 | 0.3500 | 0.5994 | -0.3408 |
| 0.3500 | 0.3936 | -1.1050 | 0.3750 | 0.5927 | -0.3656 |
| 0.3250 | 0.3914 | -1.1132 | 0.4000 | 0.5930 | -0.3644 |
| 0.3000 | 0.3872 | -1.1287 | 0.4250 | 0.5978 | -0.3465 |
| 0.2792 | * | * | 0.4500 | * | * |
| 0.2500 | 0.4249 | -0.9889 | 0.4750 | 0.6185 | -0.2697 |
| 0.2208 | 0.4207 | -1.0044 | 0.5000 | 0.6311 | -0.2230 |
| 0.2000 | 0.4222 | -0.9988 | 0.5250 | 0.6432 | -0.1782 |
| 0.1500 | 0.4228 | -0.9967 | 0.5500 | 0.6558 | -0.1312 |
| 0.1000 | 0.4269 | -0.9815 | 0.5750 | 0.6687 | -0.0834 |
| 0.0750 | 0.4048 | -1.0776 | 0.6000 | 0.6796 | -0.0428 |
| 0.0625 | 0.3968 | -1.1075 | 0.6196 | 0.6875 | -0.0135 |
| 0.0500 | 0.3887 | -1.1375 | 0.6500 | 0.6996 | 0.0313 |
| 0.0375 | 0.3916 | -1.1268 | 0.6771 | 0.7091 | 0.0669 |
| 0.0271 | 0.4855 | -0.7762 | 0.7000 | 0.7172 | 0.0984 |
| 0.0187 | 0.4496 | -0.9100 | 0.7500 | 0.7328 | 0.1563 |
| 0.0146 | 0.4677 | -0.8424 | 0.7750 | 0.7396 | 0.1817 |
| 0.0125 | 0.4815 | -0.7909 | 0.8000 | 0.7455 | 0.2034 |
| 0.0104 | 0.4975 | -0.7313 | 0.6250 | 0.7508 | 0.2230 |
| 0.0087 | 0.5095 | -0.6864 | 0.8500 | 0.7555 | 0.2404 |
| 0.0073 | 0.5237 | -0.6331 | 0.6750 | 0.7587 | 0.2524 |
| 0.0060 | 0.5460 | -0.5500 | 0.9000 | 0.7619 | 0.2644 |
| 0.0047 | 0.5723 | -0.4519 | 0.9250 | 0.7620 | 0.2646 |
| 0.0036 | 0.6041 | -0.3331 | 0.9500 | * | * |
| 0.0025 | 0.6380 | -0.2065 | 0.9750 | 0.7508 | 0.2231 |
| 0.0015 | 0.6964 | 0.0117 | 0.9875 | 0.7410 | 0.1869 |
| 0.0007 | 0.7369 | 0.1630 | 0.9937 | 0.7329 | 0.1566 |
| 0.0002 | 0.8216 | 0.4792 | | | |

Table 6.7 (concluded)

SURFACE PRESSURE DISTRIBUTION

CASE 13A M=0.740 ALPHA=3.19 RE=2700000

| EANK | MACH NO | H(KN/SQ.M | REYNOLDS | NO |
|------|---------|-----------|----------|----|
| 1 | 0.7392 | 36.38 | 2749000 | |
| 2 | 0.7393 | 36.48 | 2749000 | |
| 3 | 0.7387 | 36.58 | 2753000 | |

| UPPE | R SURFACE | | LOW | K SURFAC | E |
|--------|-----------|--------------------|--------|----------|---------|
| X/C | P/H | CP | X/C | P/H | CP |
| 0.9937 | 0.7206 | 0.0929 | 0.0000 | 0.9167 | 0.8386 |
| 0.9875 | 0.7184 | 0.0847 | 0.0002 | 0.9717 | 1.0377 |
| 0.9150 | 0.7144 | 0.0698 | 0.0007 | 0.9896 | 1.1049 |
| 0.9500 | 0.7057 | 0.0368 | 0.0015 | 0.9974 | 1.1345 |
| 0.9250 | 0.6963 | 0.0014 | 0.0025 | 0.9945 | 1.1235 |
| 0.9000 | 0.6867 | -0.0347 | 0.0036 | 0.9846 | 1.0861 |
| 0.8750 | 0.6768 | -0.0718 | 0.0047 | 0.9705 | 1.0332 |
| 0.6500 | 0.6656 | -0.1141 | 0.0060 | 0.9570 | 0.9825 |
| 0.6250 | 0.6554 | -0.1522 | 0.0073 | 0.9409 | 0.9221 |
| 0.8000 | 0.6445 | -0.1935 | 0.0087 | 0.9289 | 0.8769 |
| 0.7750 | 0.6342 | -0.2323 | 0.0104 | 0.9150 | 0.8246 |
| 0.7500 | 0.6229 | -0.2747 | 0.0125 | 0.8985 | 0.7628 |
| 0.7000 | 0.5994 | -0.3631 | 0.0146 | 0.8844 | 0.7098 |
| 0.0771 | 0.5894 | -0.4005 | 0.0186 | 0.8629 | 0.6287 |
| 0.6500 | 0.5761 | -0.4507 | 0.0271 | 0.8397 | 0.5416 |
| 0.6196 | 0.5622 | -0.5031 | 0.0375 | 0.8065 | 0.4166 |
| 0.6000 | 0.5505 | -0.5448 | 0.0500 | 0.7795 | 0.3154 |
| 0.5750 | 0.5319 | -0.6147 | 0.0625 | 0.7622 | 0.2504 |
| 0.5500 | 0.4938 | -0.7580 | 0.0750 | 0.7489 | 0.2005 |
| 0.5250 | 0.3975 | -1.1199 | 0.1000 | 0.7271 | 0.1185 |
| 0.5000 | 0.3673 | -1.2331 | 0.1500 | 0.6959 | 0.0015 |
| 0.4750 | 0.3706 | -1.2210 | 0.2000 | 0.6729 | -0.0849 |
| 0.4500 | 0.3756 | -1.2020 | 0.2500 | 0.6511 | -0.1667 |
| 0.4250 | 0.3783 | -1.1919 | 0.3000 | 0.6292 | -0.2492 |
| 0.4000 | 0.3836 | -1.1720 | 0.3250 | 0.6189 | -0.2877 |
| 0.3750 | 0.3883 | -1.1544 | 0.3500 | 0.6103 | -0.3200 |
| 0.3500 | 0.3937 | -1.1339 | 0.3750 | 0.6042 | -0.3431 |
| 0.3250 | 0.3947 | -1.1305 | 0.4000 | 0.6040 | -0.3439 |
| 0.3000 | 0.3991 | -1.1139 | 0.4250 | 0.6086 | -0.3266 |
| 0.2792 | * | * | 0.4500 | 0.6178 | -0.2918 |
| 0.2500 | 0.4084 | -1.0788 | 0.4150 | 0.6283 | -0.2526 |
| 0.2208 | 0.4178 | -1.0435 | 0.5000 | 0.6406 | -0.2061 |
| 0.2000 | 0.4193 | -1.0377 | 0.5250 | 0.6517 | -0.1646 |
| 0.1500 | 0.4168 | -1.0474 | 0.5500 | 0.6644 | -0.1170 |
| 0.1000 | 0.4162 | -1.0494 | 0.5750 | 0.6765 | -0.0715 |
| 0.0750 | 0.4008 | -1.1063 | 0.6000 | 0.6871 | -0.0314 |
| 0.0625 | 0.3933 | -1.1365 | 0.6196 | 0.6947 | -0.0031 |
| 0.0500 | 0.3868 | -1.1609 | 0.6500 | 0.7062 | 0.0402 |
| 0.0375 | 0.3911 | -1.1446 | 0.6771 | 0.7168 | 0.0801 |
| 0.0271 | 0.4724 | -0.8389 | 0.7000 | 0.7239 | 0.1053 |
| 0.0187 | 0.4389 | -0.9649 | 0.7500 | 0.7391 | 0.1624 |
| 0.0146 | 0.4569 | -0.5598 | 0.7750 | 0.7460 | 0.1384 |
| 0.0125 | 0.4716 | | 0.8000 | 0.7514 | 0.2088 |
| 0.0104 | 0.4872 | -0.7834 | 0.8250 | 0.7569 | 0.2296 |
| 0.0087 | 0.4975 | | 0.6500 | 0.7612 | 0.2455 |
| 0.0073 | 0.5112 | -0.6933 | 0.8750 | 0.7646 | 0.2586 |
| 0.0060 | 0.5344 | -0.6060 -0.5100 | 0.9000 | 0.7669 | 0.2669 |
| 0.0047 | 0.5599 | -0.3896 | 0.9250 | 0.7679 | 0.2709 |
| | 0.6262 | -0.2611 | 0.9500 | 0.7662 | 0.2646 |
| 0.0025 | 0.6846 | -0.0413 | 0.9750 | 0.7575 | 0.2317 |
| 0.0015 | 0.7264 | 0.1158 | 0.9875 | 0.7493 | 0.2007 |
| 0.0007 | 0.8117 | 0.4363 | 0.9937 | 0.7410 | 0.1698 |
| 0.0002 | 0.0117 | 0.4303 | | | |

Table 6.8

CASE 1 PROBES B

M= 0.676 ALPHA= 2.40 RE=5700000

| | | | | V/C- 0 170 | W/C= 4 A/ HADED |
|---|--|--|--|--|--|
| X/C= 0.152 | Y/C= 1.17 LOWER | X/C= 0.152 | Y/C= 2.42 LOWER | | Y/C= 1.04 UPPER |
| CONSTANT CP | (STATIC) == 0.066 | CONSTANT CP | STATIC) =- 0.066 | CONSTANT CP | STATIC) == 0.813 |
| z/c | U/UP | z/c | U/UP | Z/C | U/UP |
| 0.00015 | 0.6434 | 0.00011 | 0.5896 | 0.00023 | 0.7030 |
| 0.00023 | 0.7073 | 0,00019 | 0.6514 | 0.00030 | 0,7303 0,7745 |
| 0.00032 | 0.7830 | 0.00038 | 0.7748 | 0.00064 | 0.8030 |
| 0.00038 | 0.8079 0.8536 | 0.00050 | 0.8095 | 0.00069 | 0.8166 |
| 0.00067 | 0.8838 | 0.00060 | 0.8396 | 0.00079 | 0.8398 |
| 0.00073 | 0.8997 | 0,00074 | 0.8733 | 0.00090 | 0.8587 |
| 0.00084 | 0.9215 | 0.00080 | 0.8881 | 0.00113 | 0.8944 |
| 0.00094 | 0.9445 | 0.00103 | 0.9364 | 0.00115 | 0.8937 |
| 0.00113 | 0.9764 | 0.00117 | 0.9608 | 0.00121 | 0.9057 |
| 0.00113 | 0.9767 | 0.00133 | 0.9820 | 0.00128 0.00138 | 0.9160 |
| 0.00122 | 0.9849 | 0.00163 | 0.9969 | 0.00146 | 0.9412 |
| 0.00133 | 0.9913 | 0.00180 | 0.9993 | 0.00159 | 0.9508 |
| 0.00152 | 0.9980 | 0.00197 | 1.0000 | 0.00167 | 0.9633 |
| 0.00163 | 0.9990 | 0.00213 | 1.0000 | 0.00177 | 0.9723 0.9804 |
| 0.00177 | 0.9997 | | | 0.00200 | 0.9863 |
| 0.00192 | 1.0000 | | | 0.00213 | 0.9908 |
| 0.00207 | 1.0000 | | | 0.00225 | 0.9944 |
| | | | | 0.00236 | 0.9965 |
| | | | | 0.00261 | 0.9982 |
| | | | | 0.00280 | 0.9992 |
| | | | | 0.00290 | 0.9995 |
| | | | | 0.00306 | 0.9996 |
| | | | | 0.00330 | 0.9999 |
| | | | | 0.00340 | 1.0000 |
| | | | | 0.00355 | 1.0000 |
| x/C= 0,179 | Y/C= 2.29 UPPER | x/C= 0.319 | Y/C= 1.15 UPPER | X/C= 0,319 | Y/C= 2.40 UPPER |
| CONSTANT CP | STATIC) == 0.813 | CONSTANT CPE | STATIC) == 0.781 | CONSTANT CP | STATIC) =-0.781 |
| z/C | U/UP | z/c | U/UP | 2/0 | פע/ע |
| | | | | | |
| 0.00018 | 0.6325 | 0.00027 | 0.6025 | 0.00016 | 0.5767 |
| 0.00018 | 0.6762 | 0.00038 | 0.6314 | 0.00016 | 0.5767 |
| 0.00027 | 0.6762 | 0.00038 | 0.6314 | 0.00016 | 0.5767 |
| 0.00027 0.00033 0.00042 | 0,6762 0,7050 0,7313 | 0.00038 0.00051 0.00063 | 0.6314 0.6701 0.6958 | 0.00016 0.00023 0.00030 | 0.5767 0.6187 0.6480 |
| 0.00027 | 0.6762 | 0.00038 | 0.6314 | 0.00016 | 0.5767 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 | 0.00038 0.00051 0.00063 0.00069 0.00079 0.00089 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 0.00057 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 | 0.00038 0.00051 0.00063 0.00069 0.00079 0.00089 0.00100 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 |
| 0.00027 0.00033 0.00042 0.00055 0.00057 0.00057 | 0,6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00089 0,00100 0,00112 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 0.00057 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 | 0.00038 0.00051 0.00063 0.00069 0.00079 0.00089 0.00100 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00063 0.00070 0.00074 0.00086 0.00093 | 0,6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8225 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00089 0,00100 0,00112 0,00112 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00070 0.00074 0.00074 0.00086 0.00093 | 0,6762 0,7050 0,7313 0,7623 0,7749 0,7763 0,7939 0,8123 0,8225 0,8446 0,8599 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00089 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00114 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 |
| 0.00027 0.00033 0.00042 0.00055 0.00057 0.00057 0.00070 0.00074 0.00074 0.00086 0.00097 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00089 0,00100 0,00112 0,00112 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00070 0.00074 0.00074 0.00086 0.00093 | 0,6762 0,7050 0,7313 0,7623 0,7749 0,7763 0,7939 0,8123 0,8225 0,8446 0,8599 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00155 0,00166 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00126 0.00137 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8230 |
| 0.00027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00063 0.00070 0.00074 0.00093 0.00107 0.00113 0.00124 0.00134 | 0,6762 0,7050 0,7513 0,7623 0,7749 0,7763 0,7939 0,8123 0,8225 0,8446 0,8599 0,8840 0,8986 0,9137 0,9292 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00155 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00095 0.00104 0.00114 0.00126 0.00137 0.00150 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.7208 0.7317 0.7452 0.77569 0.77713 0.7851 0.7873 0.8144 0.8230 0.8376 |
| 0.0027 0.00032 0.00042 0.00055 0.00055 0.00057 0.00070 0.00074 0.00074 0.00093 0.00107 0.00124 0.00124 0.00145 0.00145 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 0.8986 0.9137 0.9292 0.9442 | 0.0038 0.00051 0.00063 0.00069 0.00079 0.00100 0.00112 0.00112 0.00118 0.00124 0.00137 0.00155 0.00166 0.00174 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00126 0.00137 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 |
| 0.0027 0.00032 0.00042 0.00051 0.00055 0.00057 0.00070 0.00074 0.00083 0.00107 0.00107 0.00124 0.00134 0.00145 0.00155 | 0,6762 0,7050 0,7513 0,7623 0,7749 0,7763 0,7939 0,8123 0,8225 0,8446 0,8599 0,8840 0,8986 0,9137 0,9292 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00155 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00126 0.00137 0.00150 0.00161 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 |
| 0.0027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00070 0.00074 0.00074 0.00093 0.00107 0.00113 0.00124 0.00145 0.00145 0.00155 0.00165 0.00180 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 0.8986 0.9137 0.9292 0.9442 0.9579 0.9697 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00155 0,00166 0,00174 0,00185 0,00199 0,00212 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7413 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8936 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00095 0.00104 0.00114 0.00126 0.00137 0.00150 0.00161 0.00171 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 7.8144 0.8230 0.8230 0.8468 0.8580 0.8749 0.8749 |
| 0.0027 0.00032 0.00042 0.00051 0.00055 0.00057 0.00070 0.00074 0.00093 0.00107 0.00134 0.00124 0.00135 0.00155 0.00165 0.00165 | 0,6762 0,7050 0,7313 0,7623 0,7749 0,7763 0,7939 0,8123 0,8225 0,8446 0,8599 0,8840 0,8986 0,9137 0,9292 0,9442 0,9579 0,9697 0,9811 0,9869 | 0,00038 0,00051 0,00063 0,00069 0,00089 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00155 0,00166 0,00174 0,00185 0,00199 0,00212 0,00223 0,00236 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8826 0.8826 0.8936 0.9037 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00116 0.00137 0.00150 0.00161 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.8979 |
| 0.0027 0.00032 0.00051 0.00055 0.00057 0.00070 0.00070 0.00074 0.00093 0.00107 0.00113 0.00124 0.00134 0.00145 0.00155 0.00165 0.00180 0.00193 0.00193 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.8986 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 | 0,00038 0,00051 0,00063 0,00069 0,00079 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00174 0,00174 0,00174 0,00185 0,00199 0,00212 0,00223 0,00249 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.9037 0.9137 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00095 0.00104 0.00114 0.00126 0.00137 0.00150 0.00161 0.00171 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 7.8144 0.8230 0.8230 0.8468 0.8580 0.8749 0.8749 |
| 0.0027 0.00032 0.00042 0.00051 0.00055 0.00057 0.00070 0.00074 0.00093 0.00107 0.00134 0.00124 0.00135 0.00155 0.00165 0.00165 | 0,6762 0,7050 0,7313 0,7623 0,7749 0,7763 0,7939 0,8123 0,8225 0,8446 0,8599 0,8840 0,8986 0,9137 0,9292 0,9442 0,9579 0,9697 0,9811 0,9869 | 0,00038 0,00051 0,00063 0,00069 0,00089 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00155 0,00166 0,00174 0,00185 0,00199 0,00212 0,00223 0,00236 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8826 0.8826 0.8936 0.9037 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00104 0.00114 0.00114 0.00116 0.00137 0.00150 0.00161 0.00161 0.00171 0.00183 0.00199 0.00190 0.00225 0.00241 0.00226 0.00226 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.8749 0.8865 0.8979 0.9092 |
| 0.0027 0.00032 0.00042 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00134 0.00145 0.00145 0.00165 0.00165 0.00165 0.00165 0.00165 0.00165 0.001793 0.00215 0.00245 0.00245 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88599 0.88840 0.99137 0.9292 0.9442 0.9579 0.9697 0.9697 0.9869 0.9953 0.9993 | 0,0038 0,00051 0,00063 0,00069 0,00089 0,00100 0,00112 0,00118 0,00124 0,00137 0,00145 0,00145 0,00174 0,00174 0,00185 0,00199 0,00212 0,00223 0,00236 0,00249 0,00298 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.77579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.9937 0.9137 0.9208 0.9458 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00047 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00114 0.001150 0.00150 0.00161 0.00161 0.00171 0.00183 0.00199 0.00211 0.00225 0.00241 0.00260 0.00276 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8230 0.8230 0.8230 0.8468 0.8580 0.8749 0.8865 0.8979 0.9092 0.9092 |
| 0.0027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00067 0.00070 0.00074 0.00093 0.00107 0.00124 0.00134 0.00145 0.00145 0.00180 0.00180 0.00180 0.00180 0.00203 0.00205 0.00228 0.00245 0.00272 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 0.8986 0.9137 0.9292 0.9442 0.9579 0.9697 0.9697 0.9811 0.9869 0.9953 0.9953 0.9973 0.9995 | 0,0038 0,00051 0,00063 0,00069 0,00079 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00166 0,00174 0,00185 0,00185 0,00185 0,00185 0,00212 0,00212 0,00223 0,00236 0,00280 0,00280 0,00298 0,00312 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8591 0.8716 0.8936 0.9037 0.9137 0.9208 0.9373 0.9458 0.9566 | 0.0016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00114 0.00115 0.00150 0.00150 0.00161 0.00171 0.00183 0.00199 0.00211 0.0025 0.00241 0.00266 0.00276 0.00273 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.88580 0.8749 0.8979 0.99224 0.99357 0.9448 0.9545 |
| 0.0027 0.00033 0.00042 0.00055 0.00055 0.00057 0.00070 0.00074 0.00093 0.00107 0.00124 0.00134 0.00134 0.00155 0.00165 0.00165 0.00165 0.00165 0.00165 0.00190 0.00203 0.00203 0.00218 0.00245 0.00245 0.00272 0.00272 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 0.8986 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.99579 0.9869 0.99579 0.99697 0.9988 0.99973 0.99988 0.99996 | 0.0038 0.00051 0.00063 0.00069 0.00079 0.00100 0.00112 0.00112 0.00118 0.00124 0.00137 0.00145 0.00155 0.00166 0.00174 0.00185 0.00199 0.00212 0.00236 0.00249 0.00280 0.00298 0.00298 0.00298 0.00298 0.00298 0.00312 0.00312 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8937 0.9037 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00047 0.00069 0.00076 0.00083 0.00095 0.00114 0.00114 0.00114 0.001150 0.00150 0.00161 0.00161 0.00171 0.00183 0.00199 0.00211 0.00225 0.00241 0.00260 0.00276 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8230 0.8230 0.8230 0.8468 0.8580 0.8749 0.8865 0.8979 0.9092 0.9092 |
| 0.0027 0.00033 0.00042 0.00051 0.00055 0.00057 0.00067 0.00070 0.00074 0.00093 0.00107 0.00124 0.00134 0.00145 0.00145 0.00180 0.00180 0.00180 0.00180 0.00203 0.00205 0.00228 0.00245 0.00272 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 0.8986 0.9137 0.9292 0.9442 0.9579 0.9697 0.9697 0.9811 0.9869 0.9953 0.9953 0.9973 0.9995 | 0,0038 0,00051 0,00063 0,00069 0,00079 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00166 0,00174 0,00185 0,00185 0,00199 0,00212 0,00223 0,00236 0,00280 0,00280 0,00280 0,00323 0,00323 0,00323 0,00323 0,00323 0,00323 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8936 0.9037 0.9037 0.9037 0.9037 0.9038 0.9037 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 0.9038 0.9037 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00104 0.00114 0.00126 0.00137 0.00150 0.00161 0.00171 0.00183 0.00190 0.00211 0.00241 0.00241 0.00240 0.00276 0.00276 0.00276 0.00276 0.00276 0.00372 0.003355 0.00344 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8230 0.8376 0.8468 0.8580 0.8749 0.8979 0.9092 |
| 0.0027 0.00032 0.00042 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00134 0.00145 0.00145 0.00145 0.00165 0.00165 0.00165 0.00165 0.00165 0.00165 0.00165 0.00165 0.00165 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.8840 0.8599 0.8840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9697 0.9869 0.9998 0.9998 0.99988 0.9992 0.9998 | 0.0038 0.00051 0.00063 0.00069 0.00089 0.00100 0.00112 0.00118 0.00124 0.00137 0.00145 0.00155 0.00166 0.00174 0.00185 0.00185 0.00189 0.00212 0.00236 0.00249 0.00280 0.00298 0.00298 0.00347 0.00347 0.00347 0.00347 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7916 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8936 0.9037 0.9137 0.9208 0.9373 0.9458 0.9522 0.9711 0.9752 0.9752 | 0.00016 0.00023 0.00033 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00194 0.00114 0.00126 0.00137 0.00150 0.00161 0.00171 0.00183 0.00199 0.00241 0.00241 0.00241 0.00241 0.00241 0.00241 0.00241 0.00241 0.00241 0.00241 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8230 0.8376 0.8468 0.8580 0.8749 0.9092 0.9092 0.9092 0.9092 0.9092 0.9092 0.909488 0.9092 0.9092 0.9092 0.9092 0.9092 0.9092 0.9092 0.9092 0.9092 0.9092 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0,0038 0,00051 0,00069 0,00069 0,00089 0,00100 0,00112 0,00112 0,00124 0,00137 0,00145 0,00155 0,00166 0,00174 0,00185 0,00199 0,00212 0,00236 0,00236 0,00298 0,00312 0,00347 0,00347 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.77413 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8936 0.9937 0.9137 0.9137 0.9208 0.9373 0.9458 0.9566 0.9751 0.9752 0.9865 | 0.00016 0.00023 0.00033 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00104 0.00114 0.00114 0.00116 0.00150 0.00150 0.00161 0.00171 0.00183 0.00190 0.00181 0.00260 0.00241 0.00276 0.00276 0.00276 0.00276 0.00276 0.00276 0.00276 0.00276 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.77569 0.77513 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.88468 0.8749 0.89545 0.99545 0.99545 0.99663 0.9723 0.9771 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0.0038 0.00051 0.00063 0.00069 0.00089 0.00100 0.00112 0.00118 0.00124 0.00137 0.00155 0.00166 0.00174 0.00185 0.00185 0.00185 0.00185 0.00212 0.00212 0.00236 0.00249 0.00249 0.00256 0.00298 0.00298 0.00298 0.00347 0.00347 0.00347 0.00388 0.00377 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.7702 0.7715 0.7805 0.7805 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8937 0.9037 0.9137 0.9208 0.9373 0.9458 0.9522 0.9711 0.9752 0.9752 | 0.0016 0.00030 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00104 0.00114 0.00114 0.00150 0.00150 0.00150 0.00161 0.00171 0.00183 0.00199 0.00276 0.00241 0.00260 0.00276 0.00276 0.00276 0.00276 0.00276 0.00377 0.00355 0.00344 0.00359 0.00373 0.00375 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.9092 0.9092 0.9092 0.9092 0.9063 0.9771 0.9630 0.9771 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0,0038 0,00051 0,00069 0,00069 0,00089 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00155 0,00166 0,00174 0,00185 0,00185 0,00199 0,00212 0,00236 0,00236 0,00249 0,00256 0,00298 0,00298 0,00298 0,00347 0,00347 0,00385 0,00347 0,00385 0,00377 0,00386 0,00377 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.77413 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8936 0.9037 0.9137 0.9137 0.9208 0.9208 0.9566 0.9652 0.9711 0.9752 0.9865 0.9904 | 0.00016 0.00023 0.00035 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00104 0.00114 0.00114 0.00117 0.00183 0.00190 0.00183 0.00190 0.00241 0.00225 0.00241 0.00260 0.00276 0.00293 0.00307 0.00355 0.00344 0.00355 0.003401 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.9092 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0.0038 0.00051 0.00069 0.00069 0.00089 0.00112 0.00112 0.00113 0.00124 0.00137 0.00145 0.00155 0.00166 0.00174 0.00185 0.00199 0.00212 0.00236 0.00236 0.00298 0.00298 0.00312 0.00323 0.00323 0.00323 0.00347 0.00347 0.00347 0.00347 0.00388 0.00347 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7713 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8937 0.9137 0.9137 0.9208 0.9937 0.9137 0.9208 0.9752 0.9752 0.9752 0.9865 0.9934 0.9934 0.9934 0.99366 | 0.00016 0.00023 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00114 0.00114 0.00116 0.00150 0.00160 0.00171 0.00183 0.00190 0.00183 0.00190 0.00211 0.00250 0.00241 0.00250 0.00241 0.00260 0.00276 0.00276 0.00276 0.00276 0.00276 0.00373 0.00377 0.00359 0.00373 0.00359 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8144 0.8230 0.8749 0.8580 0.8749 0.8655 0.9092 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0,0038 0,00051 0,00069 0,00069 0,00089 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00155 0,00166 0,00174 0,00185 0,00185 0,00199 0,00212 0,00236 0,00236 0,00249 0,00256 0,00298 0,00298 0,00298 0,00347 0,00347 0,00385 0,00347 0,00385 0,00377 0,00386 0,00377 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.77413 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8936 0.9037 0.9137 0.9137 0.9208 0.9208 0.9566 0.9652 0.9711 0.9752 0.9865 0.9904 | 0.00016 0.00023 0.00035 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00104 0.00114 0.00114 0.00117 0.00183 0.00190 0.00183 0.00190 0.00241 0.00225 0.00241 0.00260 0.00276 0.00293 0.00307 0.00355 0.00344 0.00355 0.003401 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6854 0.6985 0.7208 0.7317 0.7452 0.77569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8376 0.8468 0.8580 0.8749 0.9092 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0,0038 0,00051 0,00069 0,00069 0,00089 0,00100 0,00112 0,00112 0,00137 0,00145 0,00155 0,00155 0,00166 0,00174 0,00185 0,00174 0,00185 0,00199 0,00212 0,00236 0,00236 0,00236 0,00236 0,00236 0,00236 0,00236 0,00236 0,00312 0,00347 0,00347 0,00347 0,00347 0,00348 0,00347 0,00348 0,00347 0,00348 0,00347 0,00448 0,00448 0,00457 0,00447 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.77413 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.83591 0.8716 0.8826 0.937 0.9137 0.9137 0.9208 0.9566 0.9552 0.9711 0.9752 0.9865 0.9990 0.99949 0.9949 0.9949 0.9949 0.9949 0.9949 | 0.0016 0.00030 0.00030 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00095 0.00104 0.00114 0.00137 0.00150 0.00150 0.00161 0.00171 0.00183 0.00190 0.00211 0.00241 0.00241 0.00240 0.00276 0.00276 0.00276 0.00276 0.00276 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7851 0.8230 0.8230 0.8230 0.8468 0.8580 0.8749 0.86580 0.8749 0.9092 0.9092 0.9092 0.9092 0.9092 0.9093 0.909 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0,0038 0,00051 0,00069 0,00069 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00145 0,00174 0,00174 0,00185 0,00185 0,00199 0,00212 0,00223 0,00236 0,00249 0,00249 0,00256 0,00280 0,00280 0,00365 0,00365 0,00365 0,00365 0,00377 0,00365 0,00388 0,00347 0,00388 0,00416 0,00448 0,00448 0,00448 0,00457 0,00480 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7713 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8937 0.9137 0.9208 0.9937 0.9137 0.9208 0.9752 0.9652 0.9751 0.9752 0.9827 0.9827 0.9984 0.9994 0.9994 0.9994 | 0.00016 0.00023 0.00035 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00104 0.00114 0.00114 0.00116 0.00137 0.00150 0.00161 0.00171 0.00183 0.00190 0.00251 0.00260 0.00241 0.00260 0.00276 0.00260 0.00276 0.00260 0.00276 0.00373 0.00385 0.003844 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8230 0.8230 0.8749 0.98468 0.8580 0.8749 0.9092 0.9092 0.9092 0.9092 0.9063 0.9771 0.9620 0.9620 0.9653 0.9771 0.9837 0.99846 0.99921 0.99921 0.99981 0.99994 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0.0038 0.00051 0.00069 0.00069 0.00089 0.00100 0.00112 0.00112 0.00113 0.00124 0.00137 0.00155 0.00166 0.00174 0.00185 0.00185 0.00185 0.00212 0.00212 0.00236 0.00249 0.00280 0.00280 0.00280 0.00280 0.00280 0.00387 0.00387 0.00388 0.00388 0.00388 0.00388 0.00388 0.00388 0.00432 0.00480 0.00448 0.00480 0.00480 0.00480 0.00480 0.00480 0.00480 0.00480 0.00480 0.00480 0.00480 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7579 0.77579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.9037 0.9137 0.9137 0.9137 0.9137 0.9137 0.9137 0.9552 0.9711 0.9752 0.9752 0.9752 0.9752 0.9865 0.9965 0.9986 0.9999 0.9999 0.9998 0.9999 0.99994 0.9997 | 0.00016 0.00023 0.00035 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00104 0.00114 0.00114 0.00116 0.00137 0.00150 0.00161 0.00171 0.00183 0.00190 0.00251 0.00260 0.00241 0.00260 0.00276 0.00260 0.00276 0.00260 0.00276 0.00373 0.00385 0.003844 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8230 0.8230 0.8749 0.98468 0.8580 0.8749 0.9092 0.9092 0.9092 0.9092 0.9063 0.9771 0.9620 0.9620 0.9653 0.9771 0.9837 0.99846 0.99921 0.99921 0.99981 0.99994 |
| 0.00027 0.00032 0.00051 0.00055 0.00055 0.00077 0.00070 0.00074 0.00093 0.00107 0.00113 0.00134 0.00145 0.00145 0.0016 | 0.6762 0.7050 0.7313 0.7623 0.7749 0.7763 0.7939 0.8123 0.8225 0.8446 0.8599 0.88840 0.9137 0.9292 0.9442 0.9579 0.9697 0.9811 0.9869 0.9953 0.9993 0.9993 0.9995 0.99992 0.9997 1.0000 | 0,0038 0,00051 0,00069 0,00069 0,00100 0,00112 0,00112 0,00118 0,00124 0,00137 0,00145 0,00145 0,00174 0,00174 0,00185 0,00185 0,00199 0,00212 0,00223 0,00236 0,00249 0,00249 0,00256 0,00280 0,00280 0,00365 0,00365 0,00365 0,00365 0,00377 0,00365 0,00388 0,00347 0,00388 0,00416 0,00448 0,00448 0,00448 0,00457 0,00480 | 0.6314 0.6701 0.6958 0.7068 0.7254 0.7713 0.7579 0.7702 0.7715 0.7805 0.7816 0.8045 0.8144 0.8262 0.8369 0.8479 0.8591 0.8716 0.8826 0.8937 0.9137 0.9208 0.9937 0.9137 0.9208 0.9752 0.9652 0.9751 0.9752 0.9827 0.9827 0.9984 0.9994 0.9994 0.9994 | 0.00016 0.00023 0.00035 0.00035 0.00047 0.00057 0.00069 0.00076 0.00083 0.00104 0.00114 0.00114 0.00116 0.00137 0.00150 0.00161 0.00171 0.00183 0.00190 0.00251 0.00260 0.00241 0.00260 0.00276 0.00260 0.00276 0.00260 0.00276 0.00373 0.00385 0.003844 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 | 0.5767 0.6187 0.6480 0.6584 0.6834 0.6985 0.7208 0.7317 0.7452 0.7569 0.7713 0.7851 0.7973 0.8144 0.8230 0.8230 0.8230 0.8749 0.98468 0.8580 0.8749 0.9092 0.9092 0.9092 0.9092 0.9063 0.9771 0.9620 0.9620 0.9653 0.9771 0.9837 0.99846 0.99921 0.99921 0.99981 0.99994 |

The state of the s

Table 6.8 (continued)

CASE 1 PROBES B (concluded)

M= 0.676 ALPHA= 2.40 RE=5700000

| X/C= 0.750 V/C= 2.18 UPPER | X/C= 0.900 Y/C= 2.64 UPPER | X/C= 0.950 Y/C= 2.44 UPPER |
|------------------------------------|------------------------------------|--|
| CONSTANT CP(STATIC) == 0.335 | CONSTANT CP(STATIC)=-0.057 | CONSTANT CP(STATIC) = 0.057 |
| Z/C U/UP | Z/C U/UP | Z/C U/UP |
| 2/C U/UP 0.00073 0.5330 | 0.00098 0.4344 | 0.00096 0.3300 |
| 0.0073 0.5330 | 0.00123 0.4531 | 0.00132 0.3446 |
| 0.00158 0.5926 | 0.00156 0.4724 | 0.00176 0.3711 |
| 0.00206 0.6212 | 0.00206 0.4954 | 0.00230 0.3916 |
| 0.00287 0.6690 | 0.00239 0.5082 | 0,00266 0,4086 |
| 0.00351 0.7035 | 0.00289 0.5332 | 0.00338 0.4338 |
| 0.00447 0.7471 | 0.00347 0.5560 | 0.00427 0.4687 |
| 0.00526 0.7890 | 0.00388 0.5719 | 0.00427 0.4669 |
| 0.00677 0.8588 | 0.00463 0.6049 | 0.00525 0.5025 |
| 0.00771 0.8946 | 0.00559 0.6438 | 0.00695 0.5657 |
| 0.00849 0.9230 | 0.00566 0.6445 | 0.00780 0.6025 0.00856 0.6368 |
| 0.00927 0.9480 0.01099 0.9830 | 0.00653 0.6835 0.00824 0.7573 | 0.00864 -0.6365 |
| | 0.00925 0.7956 | 0.00940 0.6699 |
| 0.01157 0.9919 0.01273 0.9982 | 0.01004 0.8306 | 0.01092 0.7322 |
| 0.01337 1.0000 | 0.01012 0.8305 | 0.01168 0.7654 |
| 0.01459 1.0002 | 0.01091 0.8630 | 0.01281 0.8060 |
| 0.01530 1.0000 | 0.01272 0.9204 | 0.01386 0.8446 |
| 0.01712 1.0002 | 0.01350 0.9439 | 0.01490 0.8806 |
| 0.01823 1.0000 | 0.01475 0.9700 | 0.01594 0.9143 |
| | 0.01577 0.9867 | 0.01705 0.9428 |
| | 0.01685 0.9948 | 0,01815 0,9673 |
| | 0.01778 0.9971 | 0.01916 0.9806 |
| | 0.01903 0.9991 | 0.02018 0.9909 |
| | 0.02113 0.9991 | 0.02127 0.9969 |
| | 0.02332 1.0000 | 0.02127 0.9966 |
| | 0.02332 1.0000 | 0.02245 0.9987 0.02345 0.9996 |
| | 0.02530 1.0000 | 0.02738 1.0000 |
| | | 0.02949 1.0000 |
| | | |
| X/C= 1,000 Y/C= 2.02 WAKE | X/C= 1.025 Y/C= 2.82 WAKE | X/C= 2.000 Y/C= 1.50 WAKE |
| CONSTANT CP(STATIC) = 0.145 | CONSTANT CP(STATIC) = 0.145 | Z/C U/UP CP(STATIC) -0.06370 1.0000 -0.0004 |
| Z/C U/UP | Z/C U/UP | -0.05082 0.9993 0.0022 |
| -0.02590 1.0000 | -0.02731 1.0000 | -0.04677 0.9989 0.0021 |
| -0.02402 1.0000 | -0.02546 0.9998 | -0.03051 0.9849 0.0002 |
| -0,02158 0,9991 | -0.02325 0.9981 | -0.02315 0.9687 0.0002 |
| -0.01935 0.9964 | -0.02091 0.9931 | -0.01987 0.9599 0.0002 |
| -0.01745 0.9852 | -0.01909 0.9820 | -0.01412 0.9422 -0.0007 |
| -0.01513 0.9585 | -0.01674 0.9555 | -0.01001 0.9306 -0.0032 |
| -0.01289 0.9255 | -0.01449 0.9166 | -0.00754 0.9225 -0.0033 |
| -0.01090 0.8894 | -0.01252 0.8781 | -0.00754 |
| -0.00857 0.8412 | -0.01018 0.8383 -0.00798 0.7982 | -0.00754 0.9231 -0.0022 |
| -0.00641 0.7918 -0.00434 0.7548 | -0.00798 0.7982 -0.00591 0.7395 | -0.00589 0.9177 -0.0022 |
| -0.00217 0.6942 | -0.00380 0.6442 | -0.00011 0.9103 -0.0046 |
| -0.00129 0.6039 | -0,00296 0.5873 | 0.00257 0.9064 -0.0041 |
| -0.00055 0.2369 | -0.00167 0.4577 | 0.00681 0.9078 -0.0065 |
| 0.00033 0.2519 | 0.00078 0.4289 | 0.01005 0.9112 -0.0046 |
| 0.00242 0.3137 | 0.00299 0.4694 | 0.01593 0.9196 -0.0065 |
| 0.00457 0.3801 | 0,00507 0.5336 | 0.02092 0.9310 -0.0032 |
| 0.00662 0.4519 | 0,00715 0,5986 | 0.02757 0.9471 -0.0036 |
| 0.00882 0.5254 | 0.00931 0.6778 | 0.03090 0.9576 -0.0036 |
| 0.01111 0.6115 | 0.01120 0.7426 | 0.03474 0.9705 -0.0032 |
| 0.01302 0.6849 | 0.01337 0.8166 | 0.04174 |
| 0.01507 0.7667 | 0.01545 0.8860 | 0.04759 0.9900 -0.0022 0.05343 0.9947 -0.0027 |
| 0.01716 0.8416 | 0.01743 0.9320 0.01948 0,9703 | 0.07350 0.9998 -0.0042 |
| 0.01927 0.9082 0.02139 0.9608 | 0.02157 0.9919 | 0.09356 1.0000 -0.0037 |
| 0.02345 0.9893 | 0.02354 0.9970 | |
| 0.02540 0.9981 | 0.02536 0.9994 | |
| 0.02739 0.9998 | 0.02742 1.0002 | |
| 0.02927 1.0000 | 0.02742 0.9996 | |
| | 0.02937 1.0000 | |

BOUNDARY LAYER AND WAKE PROFILES

CASE 2 PROBES 8 M= 0.676 ALPHA=-2.18 RE= 5700000

| X/C= 0.152 | Y/C= 1.17 -LOWER | X/C= 0.152 | Y/C= 2.42 | LOWER | X/C= 0.179 | Y/C= .1.04 | UPPER |
|--|--|---|---|-------|---|--|-------|
| CONSTANT CP | STATIC) =-0.665 | CONSTANT CP | STATIC >==0.6 | 565 | CONSTANT CP | STATIC) =-0.1 | 180 |
| Z/C | U/UP | Z/C | U/UP | | Z/C | U/UP | |
| 0.00017 | 0.6710 | 0.00013 | 0.6476 | | 0.00012 | 0.6272 | |
| 0.00023 | 0.7145 | 0.00021 | 0.7087 | | 0.00015 | 0.6775 | |
| 0.00027 | 0.7444 | 0.00035 | | | | | |
| | | | 0.7627 | | 0.00023 | 0.7304 | |
| 0.00054 | 0.7793 | 0.00042 | 0.8015 | | 0.00027 | 0.7492 | |
| 0.00058 | 0.7964 | 0.00060 | 0.8400 | | 0.00044 | 0.7760 | |
| 0.00047 | 0.8213 | 0.00078 | 0.8851 | | 0.00049 | 0.7922 | |
| 0.00054 | 0.8389 | 0.00100 | 0.9278 | | 0.00064 | 0.8202 | |
| 0.00067 | 0.8667 | 0.00125 | 0.9718 | | 0,00081 | 0.8571 | |
| 0.00082 | 0.9022 | 0.00157 | 0.9835 | | 0.00088 | 0.8745 | |
| 0.00038 | 0.9219 | 0.00153 | 0.9931 | | 0.00100 | 0.8926 | |
| 0.00101 | 0.9413 | 0.00172 | 0.9986 | | 0.00123 | 0.9257 | |
| 0.00122 | 0.9735 | 0.00187 | 0.9996 | | 0.00140 | 0.9518 | |
| 0.00143 | 0.9910 | 0.00205 | 0.9999 | | 0.00159 | 0.9721 | |
| 0.00163 | 0.9974 | 0.00248 | 1.0000 | | 0.00167 | 0.9796 | |
| 0.00171 | 0.9986 | 0.00272 | 1.0000 | | 0.00182 | 0.9886 | |
| 0.00184 | 0.9994 | 0.00292 | 1.0000 | | 0.00196 | 0.9942 | |
| 0.00201 | 0.9998 | 0.00319 | 1.0000 | | 0.00215 | 0.9978 | |
| 0.00218 | 0,9999 | ******* | 1.0000 | | 0,00227 | 0.9986 | |
| 0.00235 | 1,0000 | | | | | 0.9991 | |
| 0.00245 | 1,0000 | | | | 0.00242 | | |
| | 1,0000 | | | | 0.00261 | 0.9994 | |
| 0.00268 | 1.0000 | | | | 0.00283 | 0.9997 | |
| | | | | | 0.00294 | 0.9997 | |
| | | | | | 0.00318 | 0.9997 | |
| | | | | | 0.00347 | 0.9998 | |
| | | | | | 0.00368 | 1,0000 | |
| | | | | | 0.00394 | 1.0000 | |
| | | | | | 0.00421 | 1.0000 | |
| | | | | | | | |
| x/C= 0.179 | Y/C= 2.29 UPPER | X/C= 0.319 | Y/C= 1.15 | UPPER | X/C= 0.319 | Y/C= 2.40 | UPPER |
| | | | | | | | |
| CONSTANT CP | STATIC) == 0.180 | CONSTANT CP | STATIC) == 0.3 | 314 | CONSTANT CP | STATIC) =- 0. | 314 |
| | | | | 314 | | | 314 |
| Z/C | U/UP | Z/C | U/UÞ | 314 | z/c | U/UP | 314 |
| 2/C 0.00015 | U/UP 0.6505 | Z/C 0.00013 | U/UP 0.5356 | 314 | Z/C U.00014 | U/UP 0.5635 | 314 |
| 2/C 0.00015 0.00026 | U/UP 0.6505 0.7149 | Z/C 0.00013 0.00018 | U/UP 0.5356 0.5810 | 314 | 2/C 0.00014 0.00021 | U/UP 0.5635 0.6334 | 314 |
| 2/C 0.00015 0.00026 0.00033 | U/UP 0.6505 0.7149 0.7430 | Z/C 0.00013 0.00018 0.00025 | U/UP 0.5356 0.5810 0.6241 | 314 | Z/C U.00014 0.00021 0.00033 | U/UP 0.5635 0.6334 0.6727 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 | U/UP 0.6505 0.7149 0.7430 0.7874 | 2/C 0.00013 0.00018 0.00025 0.00030 | U/UP 0.5356 0.5810 0.6241 0.6391 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 | U/UP 0.5635 0.6334 0.6727 0.6873 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00056 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00037 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00054 0.00067 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00037 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 | 314 | Z/C 0.00014 0.00021 0.00033 0.00038 0.00061 0.00063 | U/UP 0.5635 0.6334 0.6727 0.4873 0.7334 0.7423 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00056 0.00067 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00057 0.00046 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00061 0.00063 | U/UP 0.5635 0.6334 0.6727 0.4873 0.7334 0.7423 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00056 0.00056 0.00073 0.00096 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.8502 0.8973 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00037 0.00046 0.00052 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 | 314 | Z/C 0.00014 0.00021 0.00033 0.00038 0.00061 0.00063 0.00075 0.00082 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00054 0.00067 0.00073 0.00073 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8975 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00060 0.00079 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.75693 0.7806 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00067 0.00067 0.00073 0.00073 0.00100 0.00110 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.8502 0.8973 0.9078 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00060 0.00079 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 | 314 | Z/C 0.00014 0.00021 0.00033 0.00038 0.00061 0.00063 0.00075 0.00082 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00054 0.00056 0.00067 0.00073 0.00096 0.00110 0.00110 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00057 0.00046 0.00052 0.00060 0.00079 0.00087 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.75693 0.7806 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00073 0.00100 0.00110 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00052 0.00060 0.00079 0.00087 0.00097 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00092 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7896 0.7988 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00054 0.00056 0.00067 0.00073 0.00096 0.00110 0.00110 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8975 0.9078 0.9255 0.9382 0.9502 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00057 0.00046 0.00052 0.00060 0.00079 0.00087 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00092 | U/UP 0.5635 0.6334 0.6727 0.5873 0.7334 0.7423 0.7574 0.7693 0.77806 0.7988 0.8138 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00073 0.00100 0.00110 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00052 0.00060 0.00079 0.00087 0.00097 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00092 0.00116 0.00116 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7988 0.8188 0.8188 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00096 0.00110 0.00110 0.00119 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8975 0.9078 0.9255 0.9382 0.9502 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00060 0.00079 0.00087 0.00087 0.00015 0.00115 | U/UP U.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8520 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00092 0.00094 0.00116 0.00116 | U/UP 0.5635 0.6334 0.6727 0.5873 0.7334 0.7423 0.7574 0.7693 0.7693 0.7988 0.8138 0.8138 0.8321 0.8511 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00057 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00150 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00057 0.00052 0.00052 0.00060 0.00079 0.00087 0.00097 0.00097 | U/UP U.5356 0.5810 0.6241 0.6391 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8530 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00092 0.00104 0.00116 0.00130 0.00149 0.00168 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7806 0.7988 0.8188 0.8321 0.3511 0.3511 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00054 0.00056 0.00067 0.00073 0.00096 0.00110 0.00110 0.00119 0.00127 0.00127 0.00159 0.00167 | U/UP 0.6505 0.7149 0.7430 0.78374 0.8116 0.8357 0.9502 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00067 0.00079 0.00087 0.00087 0.00135 0.00135 0.00134 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8624 0.8762 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00104 0.00116 0.00149 0.00149 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7806 0.7988 0.8138 0.8321 0.3511 0.8724 0.9050 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00057 0.00073 0.00100 0.00110 0.00110 0.00119 0.00127 0.00140 0.00150 0.00167 0.00167 0.00167 0.00165 0.00165 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8975 0.9078 0.9255 0.9382 0.9502 0.9677 0.9791 0.9894 0.9955 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00060 0.00079 0.00087 0.00015 0.0015 0.00154 0.00154 0.00175 0.00175 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.71487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8624 0.8762 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00075 0.00082 0.00082 0.00104 0.00116 0.00130 0.00149 0.00168 0.00197 0.00206 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7896 0.8138 0.8138 0.83511 0.8724 0.8940 0.9050 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00048 0.00057 0.00073 0.00100 0.00110 0.00110 0.00119 0.00127 0.00147 0.00150 0.00167 0.00167 0.00167 0.00168 0.00235 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 0.9791 0.9894 0.9955 0.9985 | 2/C 0.00013 0.00018 0.00025 0.00030 0.00052 0.00060 0.00052 0.00060 0.00079 0.00087 0.00097 0.00115 0.00135 0.00154 0.00163 0.00175 0.00194 | U/UP U.5356 0.5810 0.6241 0.6391 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8624 0.8762 0.8913 0.9072 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00075 0.00082 0.00092 0.00116 0.00116 0.00149 0.00168 0.00197 0.00206 0.00220 | U/UP 0.5635 0.6334 0.6727 0.5873 0.7334 0.7423 0.7574 0.7693 0.7886 0.8138 0.8138 0.8321 0.3511 0.8724 0.8940 0.9050 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00056 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00127 0.00140 0.00159 0.00167 0.00165 0.00185 0.00285 0.00286 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9394 0.9955 0.9985 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00052 0.00060 0.00079 0.00087 0.00097 0.00015 0.00115 0.00154 0.00164 0.00164 0.00175 0.00164 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8059 0.8303 0.8624 0.8762 0.8913 0.972 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00116 0.00130 0.00149 0.00149 0.00168 0.00197 0.00206 0.00220 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7734 0.7723 0.7574 0.7693 0.7806 0.7988 0.8158 0.8321 0.3511 0.8724 0.8926 0.9181 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00057 0.00067 0.00100 0.00110 0.00110 0.00110 0.00150 0.00165 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9677 0.9791 0.9894 0.9955 0.9985 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00060 0.00079 0.00087 0.00097 0.00135 0.00154 0.00163 0.00175 0.00163 | U/UP 0.5356 0.5810 0.6241 0.6586 0.6829 0.6965 0.71487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8520 0.8913 0.9072 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00104 0.00116 0.00149 0.00168 0.00197 0.00220 0.00220 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7896 0.8138 0.8321 0.8321 0.8724 0.8960 0.9050 0.9181 0.9328 0.9328 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00057 0.00067 0.00100 0.00110 0.00110 0.00110 0.00150 0.00155 0.00167 0.00167 0.00185 0.00185 0.00185 0.00185 0.00185 0.00185 0.00185 0.00185 0.00285 0.00281 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8975 0.9078 0.9255 0.9502 0.9677 0.9791 0.9894 0.9955 0.9985 0.9995 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00069 0.00079 0.00087 0.00015 0.00155 0.00154 0.00163 0.00154 0.00163 0.00175 0.00194 0.00257 0.00254 | U/UP U.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.71487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8624 0.8762 0.8913 0.9072 0.9309 0.9465 | 314 | 2/C 0.00014 0.00033 0.00033 0.00063 0.00063 0.00075 0.00082 0.00104 0.00116 0.00130 0.00149 0.00168 0.00197 0.00206 0.00220 0.00238 0.00271 0.00271 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7896 0.8138 0.8138 0.8321 0.8511 0.8724 0.8940 0.9056 0.9056 0.9181 0.9328 0.9447 0.9768 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00057 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.00262 0.00246 0.00246 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9995 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00052 0.00062 0.00079 0.00087 0.00097 0.00115 0.00135 0.00154 0.00163 0.00175 0.00163 0.00175 0.00194 0.00208 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7781 0.7782 0.8039 0.8039 0.8303 0.8520 0.8913 0.9465 0.9309 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00092 0.00104 0.00116 0.00130 0.00169 0.00169 0.00169 0.00220 0.00228 0.00225 0.00271 0.00317 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7986 0.81321 0.8321 0.8321 0.8321 0.956 0.9181 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00096 0.00110 0.00110 0.00127 0.00140 0.00159 0.00169 0. | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 0.9791 0.9894 0.9955 0.9985 0.9995 0.9995 0.9995 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00087 0.00087 0.00087 0.00135 0.00135 0.00154 0.00163 0.00175 0.00194 0.00201 0.00201 0.00201 | U/UP 0.5356 0.5810 0.6241 0.65586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8520 0.8762 0.8913 0.9072 0.9186 0.9309 0.9465 0.9465 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00082 0.00116 0.00130 0.00149 0.00149 0.00168 0.00197 0.00206 0.00220 0.00205 0.00255 0.00271 0.00359 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7896 0.7988 0.8138 0.8321 0.8724 0.8924 0.9956 0.9181 0.9288 0.9288 0.9288 0.9328 0.9447 0.9546 0.9768 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00057 0.00067 0.00100 0.00110 0.00110 0.00119 0.00150 0.00150 0.00155 0.00165 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.3502 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 0.9791 0.9894 0.9955 0.9985 0.9985 0.9996 0.9995 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00067 0.00079 0.00087 0.00155 0.00154 0.00154 0.00163 0.00175 0.00175 0.00175 0.00194 0.00208 0.00254 0.00254 0.00246 0.00246 | U/UP U.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7631 0.7782 0.8059 0.8303 0.8520 0.8520 0.8520 0.8762 0.8762 0.97809 0.9465 0.9615 0.9685 | 314 | 2/C 0.00014 0.00021 0.00033 0.00063 0.00063 0.00075 0.00082 0.00104 0.00116 0.00116 0.00149 0.00168 0.00197 0.00206 0.00220 0.00220 0.00255 0.00271 0.00359 0.00359 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7896 0.8138 0.83511 0.8724 0.8940 0.9050 0.9181 0.9328 0.9447 0.9768 0.9861 0.9961 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00057 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00352 0.00352 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 0.9771 0.9894 0.9955 0.9985 0.9985 0.9999 1.0000 1.0000 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00052 0.00060 0.00079 0.00087 0.00087 0.00115 0.00135 0.00163 0.00163 0.00163 0.00175 0.00163 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7782 0.8059 0.8059 0.8303 0.8524 0.8762 0.8913 0.9309 0.9465 0.9309 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00092 0.00104 0.00116 0.00130 0.00149 0.00168 0.00197 0.00228 0.00228 0.00255 0.00271 0.00317 0.00359 0.00359 0.00384 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7988 0.81321 0.8511 0.8511 0.8521 0.9050 0.9181 0.9050 0.9181 0.9768 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00037 0.00046 0.00052 0.00087 0.00087 0.00087 0.00135 0.00135 0.00164 0.00175 0.00164 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 0.00208 | U/UP 0.5356 0.5810 0.6241 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8762 0.8913 0.99186 0.9309 0.9465 0.99804 0.9909 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00075 0.00082 0.00192 0.00116 0.00130 0.00149 0.00149 0.00168 0.00197 0.00206 0.00220 0.00255 0.00271 0.00255 0.00271 0.00317 0.00359 0.00359 0.00359 0.00359 0.00359 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7574 0.7693 0.7760 0.7988 0.8138 0.8321 0.3511 0.8724 0.9050 0.9181 0.9950 0.9181 0.9961 0.9961 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00057 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00262 0.00352 0.00352 | U/Up 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.8973 0.9078 0.9255 0.9382 0.9502 0.9677 0.9771 0.9894 0.9955 0.9985 0.9985 0.9999 1.0000 1.0000 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00046 0.00052 0.00060 0.00079 0.00087 0.00097 0.00135 0.00154 0.00163 0.00175 0.00163 0.00175 0.00164 0.00208 | U/UP 0.5356 0.5810 0.6241 0.65586 0.6829 0.6965 0.71487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8520 0.8762 0.8762 0.8762 0.9186 0.9186 0.9186 0.9265 0.9804 0.9909 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00082 0.00196 0.00149 0.00149 0.00149 0.00149 0.00149 0.00220 0.00220 0.00220 0.00220 0.00238 0.00255 0.00271 0.00359 0.00359 0.00359 0.00410 0.00410 0.00410 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7693 0.7896 0.8138 0.8321 0.8724 0.8960 0.9181 0.9328 0.9447 0.95646 0.9768 0.9961 0.9961 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00057 0.00060 0.00079 0.00087 0.00097 0.00115 0.00135 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 0.00175 0.00163 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8303 0.8524 0.8762 0.8913 0.952 0.9186 0.9465 0.9615 0.9909 0.9954 0.9979 | 314 | 2/C 0.00014 0.00021 0.00033 0.00036 0.00063 0.00063 0.00075 0.00092 0.00104 0.00130 0.00149 0.00197 0.00168 0.00197 0.00228 0.00225 0.00225 0.00255 0.00271 0.00359 0.00359 0.00359 0.00359 0.00359 0.00359 | U/UP 0.5635 0.6334 0.6727 0.6727 0.7334 0.7423 0.7574 0.7693 0.7806 0.7988 0.8121 0.8511 0.8511 0.8511 0.8940 0.9050 0.9181 0.9768 0.9768 0.9961 0.9976 0.99861 0.9976 0.9986 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00046 0.00052 0.00067 0.00087 0.00087 0.00015 0.0015 0.0015 0.00164 0.00175 0.00154 0.00175 0.00154 0.00208 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8059 0.8059 0.8059 0.8059 0.8762 0.8762 0.8913 0.9072 0.9186 0.9309 0.9465 0.9615 0.99615 0.9979 0.9954 0.9979 0.9999 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00092 0.00104 0.00116 0.00130 0.00168 0.00197 0.00206 0.00255 0.00271 0.00255 0.00271 0.00317 0.00319 0.00359 0.00359 0.00359 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7734 0.77423 0.77574 0.7693 0.7806 0.7988 0.81321 0.8321 0.8321 0.8321 0.9181 0.99181 0.9956 0.9181 0.9956 0.99861 0.9961 0.9976 0.9984 0.9991 1.0000 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00046 0.00052 0.00087 0.00087 0.00087 0.00135 0.00135 0.00154 0.00154 0.00163 0.00175 0.00186 0.00175 0.00186 0.00187 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 0.00186 | U/UP 0.5356 0.5810 0.6241 0.6586 0.6829 0.6965 0.71487 0.7631 0.7782 0.8059 0.8303 0.8520 0.8520 0.8762 0.8913 0.9615 0.9465 0.9615 0.9685 0.9685 0.9954 0.9954 0.9979 0.9999 | 314 | 2/C 0.00014 0.00021 0.00033 0.00036 0.00063 0.00063 0.00075 0.00082 0.00116 0.00130 0.00149 0.00149 0.00149 0.00206 0.00220 0.00220 0.00235 0.00271 0.00359 0.00359 0.00359 0.00359 0.00426 0.00426 0.00426 0.004275 0.00527 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7806 0.7988 0.8321 0.8724 0.8724 0.8940 0.9056 0.9181 0.9256 0.9181 0.9256 0.9266 0.9961 0.9961 0.9961 0.9984 0.9991 1.0000 1.0000 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00046 0.00052 0.00067 0.00067 0.00087 0.00087 0.00154 0.00154 0.00154 0.00154 0.00154 0.00154 0.00154 0.00155 0.00154 0.00155 0.00154 0.00257 0.00254 0.00257 0.00254 0.00257 0.00254 0.00257 0.00255 0.00357 0.00375 0.00375 0.00375 0.00375 0.00375 | U/UP U.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7631 0.7782 0.8059 0.8303 0.8520 0.8303 0.8520 0.8762 0.8913 0.9072 0.9186 0.9072 0.9186 0.9909 0.9954 0.9909 0.9979 0.9994 0.9999 | 314 | 2/C 0.00014 0.00021 0.00033 0.00038 0.00063 0.00063 0.00075 0.00092 0.00104 0.00116 0.00130 0.00168 0.00197 0.00206 0.00255 0.00271 0.00255 0.00271 0.00317 0.00319 0.00359 0.00359 0.00359 | U/UP 0.5635 0.6334 0.6727 0.6873 0.7734 0.77423 0.77574 0.7693 0.7806 0.7988 0.81321 0.8321 0.8321 0.8321 0.9181 0.99181 0.9956 0.9181 0.9956 0.99861 0.9961 0.9976 0.9984 0.9991 1.0000 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00046 0.00057 0.00087 0.00087 0.00015 0.0015 0.00163 0.00175 0.00163 0.00175 0.00164 0.00208 | U/UP 0.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7487 0.7631 0.7782 0.8059 0.8059 0.8303 0.8520 0.8762 0.8913 0.9186 0.9309 0.9465 0.9465 0.9465 0.9909 0.9954 0.9999 0.9954 0.9999 | 314 | 2/C 0.00014 0.00021 0.00033 0.00036 0.00063 0.00063 0.00075 0.00082 0.00116 0.00130 0.00149 0.00149 0.00149 0.00206 0.00220 0.00220 0.00235 0.00271 0.00359 0.00359 0.00359 0.00359 0.00426 0.00426 0.00426 0.004275 0.00527 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7806 0.7988 0.8321 0.8724 0.8724 0.8940 0.9056 0.9181 0.9256 0.9181 0.9256 0.9266 0.9961 0.9961 0.9961 0.9984 0.9991 1.0000 1.0000 | 314 |
| 2/C 0.00015 0.00026 0.00033 0.00046 0.00056 0.00067 0.00073 0.00100 0.00110 0.00110 0.00127 0.00140 0.00155 0.00167 0.00167 0.00167 0.00167 0.00167 0.00167 0.0026 0.0026 0.0026 0.0026 0.0026 0.0026 0.0027 0.0037 0.0037 0.0037 0.0037 | U/UP 0.6505 0.7149 0.7430 0.7874 0.8116 0.8357 0.9502 0.9078 0.9255 0.9382 0.9502 0.9677 0.9701 0.9894 0.9955 0.9985 0.9995 0.9999 0.9999 | 2/C 0.00013 0.00018 0.00025 0.00037 0.00046 0.00052 0.00067 0.00067 0.00087 0.00087 0.00154 0.00154 0.00154 0.00154 0.00154 0.00154 0.00154 0.00155 0.00154 0.00155 0.00154 0.00257 0.00254 0.00257 0.00254 0.00257 0.00254 0.00257 0.00255 0.00357 0.00375 0.00375 0.00375 0.00375 0.00375 | U/UP U.5356 0.5810 0.6241 0.6391 0.6586 0.6829 0.6965 0.7193 0.7631 0.7782 0.8059 0.8303 0.8520 0.8303 0.8520 0.8762 0.8913 0.9072 0.9186 0.9072 0.9186 0.9909 0.9954 0.9909 0.9979 0.9994 0.9999 | 314 | 2/C 0.00014 0.00021 0.00033 0.00036 0.00063 0.00063 0.00075 0.00082 0.00116 0.00130 0.00149 0.00149 0.00149 0.00206 0.00220 0.00220 0.00235 0.00271 0.00359 0.00359 0.00359 0.00359 0.00426 0.00426 0.00426 0.004275 0.00527 | U/UP 0.3635 0.6334 0.6727 0.6873 0.7334 0.7423 0.7574 0.7693 0.7806 0.7988 0.8321 0.8724 0.8724 0.8940 0.9056 0.9181 0.9256 0.9181 0.9256 0.9266 0.9961 0.9961 0.9961 0.9984 0.9991 1.0000 1.0000 | 314 |

Table 6.8 (continued)

CASE 2 PROBES 8 (concluded)
M= 0.676 ALPHA=-2.18 RE= 5700000

| x/c= 0,750 | Y/C= 2.18 UPPER | X/C= 0.900 | Y/C= 2.64 | UPPER | X/C= 0.950 | Y/C= 2.44 | UPPER |
|----------------------|------------------|--------------|----------------|-------|----------------------|-------------|------------|
| CONSTANT CPC | STATIC) == 0.234 | CONSTANT CP | STATIC) =-0.0 | 28 | CONSTANT CP | STATIC) = 0 | .073 |
| 2/0 | U/UP | Z/C | U/UP | | 2/0 | 114110 | |
| | | 0.00080 | | | | U/Up | |
| 0.00075 | 0.5773 | | 0.4989 | | 0.00069 | 0.4280 | |
| 0.00109 | 0.6100 | 0.00105 | 0.51/2 | | 0.00194 | 0.4601 | |
| 0.00126 | 0.6299 | 0.00146 | 0.5469 | | 0.00122 | 0.4744 | |
| 0.00193 | 0.6705 | 0.00179 | 0.5660 | | 0.00167 | 0.5021 | |
| 0.00241 | 0.6998 | 0.00204 | 0.5745 | | 0.00248 | 0.5398 | |
| 0.00313 | 0.7428 | 0.00254 | 0.6009 | | 0.00301 | 0.5671 | |
| 0.00370 | 0.7725 | 0.00279 | 0.6109 | | 0.00355 | 0.5948 | |
| 0.00417 | 0.8035 | 0.00320 | 0.6349 | | 0.00453 | 0.6341 | |
| 0,00513 | 0.8490 | 0.00403 | 0.6723 | | 0.00561 | 0.6860 | |
| 0.00608 | 0.8940 | 0.00469 | 0.7004 | | 0.00659 | 0.7317 | |
| 0.00711 | 0.9308 | 0.00527 | 0.7303 | | 0.00779 | 0.7817 | |
| 0.00813 | 0.9659 | 0.00628 | 0.7764 | | 0.00930 | 0.8470 | |
| 0.00976 | 0.9932 | 0.00738 | 0.8238 | | 0.011.07 | 0.9141 | |
| 0.01139 | 0.9998 | 0.00839 | 0.8667 | | 0.01272 | 0.9631 | |
| 0.01284 | 1.0000 | 0.00964 | 0.9119 | | 0.01420 | 0.9877 | |
| 0.01405 | 1.0000 | 0.01130 | 0.9629 | | 0.01610 | 0.9990 | |
| 0.01583 | 1.0000 | 0.01326 | 0.9930 | | 0.01805 | 1.0000 | |
| 0.01758 | 1.0000 | 0.01506 | 0.9991 | | 0.01982 | 1.0000 | |
| | | 0.01654 | 0.9996 | | 0.02153 | 1.0001 | |
| | | 0.01848 | 0.9996 | | 0.02326 | 1.0000 | |
| | | 0.02050 | 0.9999 | | 0.02475 | 1.0000 | |
| | | 0.02229 | 1.0000 | | | | |
| | | 0.02379 | 1.0000 | | | | |
| x/c= 1.090 | Y/C=2.02 WAKE | X/C= 1.025 | v/C= 2.82 | WAKE | X/C= 2.000 | v/C= 1.50 | WAKE |
| CONSTANT CD | STATIC) = 0,186 | CONSTANT CO. | STATIC) = 0.18 | 9.4 | Z/C | U/UP | CP(STATIC) |
| CONSTANT CF | 3171117 | CONSTANT CP | 31A1107- 0.10 | 0.0 | -0.20766 | 1,0000 | -0.0014 |
| 2/0 | U/UP | 2/0 | UIUD | | -0.16639 | 1.0000 | -0.0052 |
| -0.02864 | 0.9933 | -0.02893 | 0.9957 | | -0.14172 | 0.9998 | -0.0009 |
| -0.02751 | 0.9877 | -0.02750 | 0.9913 | | -0.12682 | 1.0000 | -0.0052 |
| -0.02565 | 0.9758 | -0.02591 | 0.9862 | | -0.10852 | 0.9998 | -0.0032 |
| -0.02350 | 0.9538 | -0.02389 | 0.9735 | | -0.10019 | 0.9996 | -0.0062 |
| -0.02141 | 0.9228 | | 0.9550 | | -0.09184 | 0.9973 | -0.0047 |
| -0.01934 | 0.8893 | -0.02175 | | | -0.08452 | 0.9893 | -0.0033 |
| | 0.8491 | -0.01975 | 0.9260 | | -0.07513 | 0.9714 | |
| -0.01702 -0.01496 | 0.8092 | -0,01740 | 0.8920 | | -0.06760 | 0.9487 | -0.0047 |
| | 0.7713 | -0.01531 | 0.8507 | | -0.05924 | 0.9236 | -0.0038 |
| -0.01280 | 0.7431 | -0.01315 | 0.8127 | | -0.04974 | 0.9092 | -0.0058 |
| -0.01073 | | -0.01108 | 0.7775 | | -0.04139 | 0.9119 | -0.0043 |
| -0.00848 | 0.7116 | -0.00883 | 0,7398 | | | | -0.0057 |
| -0.00623 | 0.6825 | -0.00655 | 2669.0 | | -0.03304 -0.02470 | 0.9285 | -0.0052 |
| -0.00408 | 0.6601 | -0.00439 | 0.6605 | | | 0.9514 | -0.0063 |
| -0.00287 | 0.6405 | -0,00321 | 0.6138 | | -0.01555 | 0.9757 | -0.0077 |
| -0.00155 | 0,5035 | -0.00186 | 0.3526 | | -0.00807 | 0,9899 | -0.0072 |
| -0.00068 | 0.3856 | -0.00102 | 0.5085 | | 0.00022 | 0.9979 | -0.0071 |
| 0.00059 | 0.3250 | 0.00015 | 0.4927 | | 0.00850 | 1.0000 | -0.0081 |
| 0.00147 | 0.3714 | 0.00113 | 0.5092 | | 9.02497 | 1.0000 | -0.0076 |
| 0.00309 | 0.4385 | 0.00264 | 0.5638 | | 0.04132 | 1.0000 | -0.0081 |
| 0.00474 | 0.5069 | 0.00441 | 0.61/4 | | | | |
| 0.00688 | 0.6070 | 0.00658 | 0,7135 | | | | |
| 0.00490 | 0.6941 | 0.00856 | 0,7877 | | | | |
| 0.01119 | 0,7870 | 0.01071 | 0.8658 | | | | |
| 0.01335 | 0.8742 | 0.01293 | 0.9365 | | | | |
| 0.01516 | 0.9339 | 0.01460 | 0.9746 | | | | |
| 0.01623 | 0.9643 | 0.01559 | 0.9886 | | | | |
| 0.01792 | 0.9895 | 0.01724 | 0.9962 | | | | |
| 0.02019 | 0.9988 | 0.01946 | 0.9984 | | | | |
| 0.02155 | 0.9997 | 0.02076 | 0.9005 | | | | |
| 0.02631 | 0.9997 | 0.02542 | 0.9995 | | | | |
| 0.02788 | 1.0000 | 0.02684 | 1.0000 | | | | |
| 0.02943 | 1,0000 | 0.02864 | 1.0000 | | | | |
| | | | | | | | |

Table 6.8 (continued)

. CASE 3 PROBES B

M= 0.600 ALPHA= 2.57 PE=6300000

| X/C= 0.152 | Y/C= 1.17 LOWER | x/c= 0.152 | Y/C= 2.42 LOWER | X/C= 0.179 | Y/C= 1.04 UPPER |
|-------------|-------------------|-------------|-------------------|-------------|-------------------|
| CONSTANT CP | (STATIC) = -0.051 | CONSTANT CP | (STATIC) = -0.051 | CONSTANT CP | (STATIC) = -0.745 |
| 2/0 | U/UP | Z/C | U/UP | 2/0 | U/Up |
| 0.00017 | 0.6747 | 0.00012 | 0.6038 | 0.00015 | 0.6152 |
| 0.00026 | 0.7311 | 0.00025 | 0.7183 | 0.00023 | 0.6647 |
| 0.00036 | 0.7649 | ú.00053 | 0.7667 | 0.00038 | 0.6953 |
| 0.00045 | 0.7986 | 0.00064 | 0.8114 | 0.00052 | 0.7279 |
| 0.00054 | 0.8219 | 0.00078 | 0.8483 | 0.00062 | 0.7502 |
| 0.00077 | 0.8676 | 0.00090 | 0.8767 | 0.00083 | 0.7840 |
| 0.00100 | 0.8990 | 0.00115 | 0.9140 | 0.00108 | 0.8094 |
| 0.00122 | 0.9246 | 0.00139 | 0.9408 | 0.00128 | 0.8280 |
| 0.00137 | 0.9420 | 0.00161 | 0.9595 | 0.00146 | 0.8415 |
| 0.00163 | 0.9569 | 0.00180 | 0.9694 | 0.00167 | 0.8548 |
| 0.00185 | 0.9679 | 0,00213 | 0.9778 | 0.00190 | 0.8678 |
| 0.00207 | 0.9744 | 0.00231 | 0.9803 | 0.00212 | 0.8770 |
| 0.00220 | 0.9783 | 0.00250 | 0.9844 | 0.00229 | 0.8854 |
| 0.00242 | 0.9801 | 0.00275 | 0,9859 | 0.00252 | 0.8950 |
| 0.00265 | 0.9844 | 0.00295 | 0.9875 | 0.00270 | 0.9030 |
| 0.00291 | 0.9873 | 0.00322 | 0.9901 | 0.00297 | 0.9122 |
| 0.00312 | 0,9897 | 0.00345 | 0.9926 | 0.00313 | 0.9184 |
| 0.00333 | 0.9914 | 0.00368 | 0.9933 | 0.00333 | 0.9250 |
| 0.00358 | 0.9937 | 0.00391 | 0.9952 | 0.00357 | 0.9320 |
| 0.00379 | 0.9946 | 0.00413 | 0.9959 | 0.00380 | 0.9377 |
| 0.06400 | 0.9961 | 0.00442 | 0.9966 | 0.00402 | 0.9432 |
| 0.00422 | 0.9970 | 0.00482 | 0.9980 | 0.00420 | 0.9487 |
| 0.00443 | 0.9978 | 0.06503 | ú.9991 | 0.00442 | 0.9533 |
| 0.00462 | 0.9984 | 0,00563 | 0.9995 | 0.00459 | 0.9590 |
| 0.00483 | 0.9987 | 0.00597 | 1.0000 | 0.00480 | 0.9636 |
| 0.00494 | 0.9989 | 0.00756 | 1.0000 | 0.00494 | 0.9668 |
| 0.00520 | 0.9993 | | | 0.00519 | 0.9724 |
| 0.00543 | 0.9994 | | | 0.00543 | 0.9769 |
| 0.00563 | 0.9996 | | | 0.00562 | 0.9800 |
| 0.00590 | 0.9498 | | | 0.00592 | 0.9840 |
| 0.00622 | 1.0000 | | | 0.00625 | 0.9885 |
| 0.00661 | 1.0000 | | | 0.0060 | 0.9923 |
| 0.00712 | 1.0000 | | | 0.00713 | 0.9962 |
| | | | | 0.00752 | 0.9980 |
| | | | | 0.60795 | 0.9990 |
| | | | | 0.00834 | 1.0000 |
| | | | | 0.00877 | 1.0000 |
| | | | | 0.00926 | 1.0000 |

Table 6.8 (continued)

CASE 3 PROBES B (continued)
M= 0.600 ALPHA= 2.57 RE=6300000

| C- V. 177 | Y/C= 2.29 UPPER | | *** | ., | Y/C= 2.40 UPF |
|-----------|-----------------|-------------|------------------|-------------|---------------|
| STANT CPE | TATIC) = -0.745 | CONSTANT CP | STATIC) = -0.693 | CONSTANT CP | STATIC)0.693 |
| | U/UP | z/C | U/UP | 2/0 | U/UP |
| Z/C | | 0.00017 | 0.5467 | 0.00016 | 0.5770 |
| 0.00017 | 0.6048 | 0.00028 | 0.5765 | 0.00025 | 0.6337 |
| 0.00028 | 0.6616 | 0.00042 | 0.6072 | 0.00036 | 0.6745 |
| 0.00042 | 0.6909 | 0.00055 | 0.6284 | | |
| 0.0049 | 0.7119 | 0.00080 | 0.6565 | 0.00050 | 0.6985 |
| 0.00058 | 0.7279 | 0.00098 | 0.6839 | | 0.7177 |
| 0.00070 | 0.7425 | 0.00121 | 0.7029 | 0.00066 | 0.7330 |
| 0.00086 | 0.7588 | 0.00141 | 0.7152 | 0.00077 | 0.7487 |
| 0.00102 | 0.7744 | 0.00160 | 0.7295 | 0.00093 | 0.7658 |
| 0.00132 | 0.7937 | 0.00185 | 0.7457 | 0.00110 | 0.7833 |
| 0.00153 | 0.8094 | 0.00205 | 0.7539 | 0.00140 | 0.8049 |
| 0.00175 | 0.8225 | 0.00220 | | 0.00160 | 0.8197 |
| 0.00195 | 0.8317 | | 0.7640 | 0.00181 | 0.8326 |
| 0.00220 | 0.8463 | 0.00241 | 0.7780 | 0.00200 | 0.8427 |
| 0.00244 | 0.8546 | 0,00264 | 0.7880 | 0.00222 | 0.8562 |
| 0.00268 | 0.8634 | 0.00288 | 0.8001 | 0.00244 | 0.8649 |
| 0.00289 | 0.8761 | 0.00309 | 0.8095 | 0.00268 | 0.8754 |
| 0.00312 | 0.8836 | 0.00325 | 0.8167 | 0.00289 | 0.8850 |
| 0.60337 | 0.8911 | 0.00350 | 0.8287 | 0,00313 | 0.8916 |
| 0.00357 | 0.8998 | 0.00371 | 0.8378 | 0.00339 | 0.9021 |
| 0.00382 | 0.9069 | 0.00393 | 0.8456 | 0.00360 | 0.9098 |
| 0.00405 | 0.9154 | 0.00417 | 0.8554 | 0.00385 | 0.9132 |
| 0.00427 | 0.9215 | 0.00440 | 0.8661 | 0.00408 | 0.9216 |
| 0.00450 | 0.9315 | 0.00457 | 0.8715 | 0.00430 | 0.9261 |
| 0.00473 | 0.9364 | 0.00481 | 0.8810 | 0.00453 | 0.9327 |
| 0.00498 | 0.9456 | 0.00493 | 0.8867 | 0.00476 | 0.9359 |
| 0.00519 | 0.9512 | 0.00522 | 0.8985 | 0.00500 | 0.9436 |
| 0.00540 | 0.9567 | 0.00545 | 0.9074 | 0.00521 | 0.9493 |
| 0.00564 | 0.9641 | 0.00563 | 0.9126 | 0.00541 | 0.9515 |
| 0.00584 | 0.9671 | 0.00588 | 0.9235 | 0.00566 | 0.9574 |
| 0.00617 | 0.9744 | 0.00619 | 0.9340 | 0.00585 | 0.9597 |
| 0.00651 | 0.9804 | 0,00656 | 0.9458 | 0.00615 | 0.9638 |
| 0.00690 | 0.9868 | 0.00711 | 0.9605 | 0.00647 | 0.9707 |
| 0.00738 | 0.9918 | 0.00754 | 0.9707 | 0.00691 | 0.9752 |
| 0.00785 | 0.9948 | 0.00797 | 0.9788 | 0.00746 | 0,9822 |
| 0.00831 | 0.9974 | 0.00838 | 0.9858 | 0.00790 | 0.9859 |
| 0.00871 | 0.9986 | 0.00880 | 0.9911 | 0.00836 | 0.9904 |
| 0.00918 | 0.9994 | 0.00927 | 0.9946 | 0.00879 | 0.9933 |
| 0.00963 | 0.9996 | 0.00975 | 0.9970 | 0.00923 | 0.9959 |
| 0.01020 | 0.9999 | 0.01013 | 0.9984 | 0.00963 | 0.9969 |
| 0.01065 | 1.0000 | 0.01060 | 0.9991 | 0.01015 | 0.9983 |
| 0.01113 | 1.0000 | 0.01096 | 0.9995 | 0.01063 | 0.9989 |
| 0.01113 | | 0.01145 | 0.9998 | 0.01112 | 0.9995 |
| | | 0.01211 | 1.0000 | 0.01163 | 1.0000 |
| | | | | 0,01210 | 1.0000 |

Table 6.8 (continued)

CASE 3 PROBES B (concluded)

M= 0.600 ALPHA= 2.57 RE=6300000

| 2/C | x/C= 0.750 | Y/C= 2.18 | UPPER | X/C= 0.900 | Y/C= 2.64 | UPPER | x/c= 0.950 | Y/C= 2.44 | UPPER |
|--|--------------|--------------|-------|--------------|-----------------|-------|--------------|-----------|------------|
| 0, 10073 | CONSTANT CPC | STATIC) = -0 | .320 | CONSTANT CP | STATIC) | 0.060 | CONSTANT CPC | STATIC)= | 0.044 |
| 0, 10073 | 2/0 | 11/110 | | 7/0 | 11/110 | | 7/0 | U/IIP | |
| 0.0025 0.1635 0.1635 0.00270 0.4486 0.00080 0.3234 0.0026 0.00280 0.00 | | | | | | | | | |
| 0.00245 0.46163 0.00270 0.4868 0.00367 0.5279 0.00240 0.3570 0.00470 0 | | | | | | | | | |
| 0.10342 0.4646 0.4683 0.00472 0.3590 0.10225 0.3374 0.10261 0.7022 0.4027 0.402 | | | | | | | | | |
| 0, 10440 0, 6083 0, 10472 0, 3590 0, 10325 0, 4250 0, 10032 0, 4260 0, 100727 0, 48161 0, 0.0632 0, 6249 0, 104727 0, 48161 0, 10126 0, 7386 0, 100727 0, 48161 0, 10126 0, 7386 0, 100727 0, 48161 0, 10126 0, 7386 0, 100727 0, 48161 0, 10126 0, 7386 0, 100727 0, 48161 0, 401727 0, 48161 0, 401727 0, 48161 0, 48161 0, 48101 0, | | | | | | | | | |
| 0,0007 | | | | | | | | | |
| 0, 0.0757 | | | | | | | | | |
| 0, 60.0728 0, 8716 0, 61026 0,7386 0, 61091 0, 60091 0, 60091 0, 61094 0, 6721 0, 61112 0, 9236 0, 61310 0, 9445 0, 61230 0, 80091 0, 611094 0, 6721 0, 61311 0, 9803 0, 61448 0, 8730 0, 61314 0, 7422 0, 61511 0, 9803 0, 61448 0, 8730 0, 61314 0, 7422 0, 61511 0, 9803 0, 61645 0, 9266 0, 61314 0, 7422 0, 6165 0, 9266 0, 61314 0, 7422 0, 6165 0, 9266 0, 61314 0, 7422 0, 6165 0, 9266 0, 61314 0, 7422 0, 6165 0, 9266 0, 61314 0, 7422 0, 6165 0, 9267 0, 6165 0, 9277 0, 9277 0, 9 | | | | | | | | | |
| 0,1112 | | | | | | | | | |
| 0, u1310 0, 9645 0, 01448 0,8730 0,01344 0,7426 0,01510 0,0165 0,9893 0,01684 0,9977 0,01867 0,995 0,0299 0,0299 0,02291 0,0999 0,02210 0,0252 0,0999 0,02210 0,0252 0,0999 0,02210 0,0252 0,0999 0,02210 0,0252 0,0999 0,02319 0,0999 0,03319 1,0000 0,03028 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,03328 1,0000 0,0005 0,0009 0,0 | | | | | | | | | |
| 0, 11511 | | 0.9645 | | | | | | | |
| 0.11884 | | | | | | | | | |
| 0.10857 0.9995 0.0291 0.9893 0.01964 0.9221 0.9205 0.0205 0.9995 0.02319 0.9997 0.02218 0.9999 0.02386 1.0000 0.02695 1.0000 0.02695 1.0000 0.02695 1.0000 0.02695 1.0000 0.03241 1.0000 0.03305 1.0000 0.03241 1.0000 0.03241 1.0000 0.03305 1.0000 0.03241 1.0000 0.03241 1.0000 0.03305 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 1.0000 0.03241 0.0000 0.03241 0.0000 0.03241 0.0000 0.03241 0.0000 0.0005 0 | | | | | | | | | |
| 0.0252 | | 0.9995 | | | | | | | |
| 0.02286 1,0000 0.02695 1,0000 0.02695 0.9972 0.02347 1,0000 0.02695 1,0000 0.03028 1,0000 0.0005 0.02625 1,0000 0.02622 0.0000 0.0005 0.0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 1,0000 0.0005 0.02626 0.0000 0.0005 0.0005 0.000 | | 0.9999 | | | | | | | |
| 0.02386 1.0000 | | 0.9499 | | | | | | | |
| 0.02547 1.0000 | | | | | | | | | |
| X/C= 1.000 Y/C= 2.02 VAKE X/C= 1.025 Y/C= 2.82 WAKE X/C= 2.000 Y/C= 1.50 WAKE CONSTANT CP(STATIC)= 0.126 CONSTANT CP(STATIC)= 0.126 | | 1.0000 | | | | | 0.02812 | 0.9998 | |
| X/C= 1.000 V/C= 2.02 DAKE X/C= 1.025 V/C= 2.82 MAKE X/C= 2.000 V/C= 1.50 DAKE CONSTANT CP(STATIC)= 0.126 CONSTANT CP(STATIC)= 0.126 | | | | | | | 0.03028 | | |
| X/C= 1.000 Y/C= 2.02 WAKE | | | | | | | | 1.0000 | |
| CONSTANT CP(STATIC) = 0.126 | X/C= 1.000 | V/C= 2.02 | WAKE | X/C= 1.025 | Y/C= 2.82 | WAKE | X/C= 2.000 | Y/C= 1.50 | WAKE |
| 2/C | | | | CONSTANT CRE | STATICAL | 0 126 | 2/0 | U/UP | CP(STATIC) |
| 2/C | CONSTANT CP | (STATIC)= | 0.126 | CONSTANT CF | a (A () C) - | 0.120 | | | |
| -0.02433 1.0000 -0.02429 1.0000 -0.04723 1.0000 0.0005 -0.02226 1.0000 -0.02212 0.9987 -0.03833 0.9998 0.0000 -0.01995 0.9987 -0.02203 0.9934 -0.03833 0.9998 0.0000 -0.01995 0.9987 -0.02203 0.9934 -0.03523 0.9998 -0.0024 -0.01772 0.9917 -0.01787 0.9787 -0.02531 0.9947 -0.0010 -0.01558 0.9745 -0.01592 0.9536 -0.02122 0.9899 -0.0014 -0.01343 0.9431 -0.01390 0.9182 -0.01713 0.9822 -0.0014 -0.01310 0.8987 -0.01166 0.8745 -0.01385 0.9759 -0.0043 -0.00885 0.8516 -0.00944 0.8291 -0.00892 0.9631 -0.0033 -0.00673 0.8091 -0.00520 0.7395 -0.00481 0.9512 -0.0032 -0.00673 0.8091 -0.00520 0.7355 0.00014 0.9346 -0.0072 -0.00435 0.7591 -0.00520 0.7375 0.00014 0.9346 -0.0072 -0.00435 0.7591 -0.00520 0.7375 0.00014 0.9346 -0.0072 -0.00230 0.7156 -0.00319 0.6016 0.00675 0.9132 -0.0052 -0.00230 0.7156 -0.00319 0.6016 0.00675 0.9132 -0.0052 -0.00230 0.7156 -0.00214 0.9017 0.01171 0.9019 -0.0061 -0.00122 0.6789 -0.00214 0.9017 0.01171 0.9019 -0.0061 -0.00033 0.4668 -0.00226 0.4590 0.01503 0.8967 -0.0071 -0.00033 0.4668 -0.00126 0.4590 0.01503 0.8967 -0.0071 -0.00038 0.4668 -0.00126 0.4590 0.01503 0.8967 -0.0076 -0.0044 0.2535 0.00049 0.3919 0.41948 0.8939 -0.0076 -0.00250 0.2736 0.00152 0.3854 0.02365 0.8944 -0.0066 -0.00250 0.2736 0.00152 0.3854 0.02365 0.8944 -0.0066 -0.00250 0.2736 0.00058 0.4844 0.06367 0.9947 -0.0076 -0.0083 0.4605 0.4615 0.00750 0.4846 0.00750 0.0086 -0.00250 0.2736 0.00088 0.4657 0.05869 0.00114 0.9890 -0.0076 -0.0083 0.4605 0.4615 0.00750 0.4846 0.09877 0.0076 -0.0083 0.4605 0.4615 0.00750 0.4844 0.06867 0.9990 -0.0052 -0.01316 0.5996 0.01193 0.6689 0.66873 0.9999 -0.0052 -0.01326 0.7346 0.00088 0.00088 0.06867 0.9999 -0.0052 -0.013372 0.07299 0.02280 0.9985 0.10104 0.9999 -0.00675 -0.02584 0.9725 0.02408 0.9995 0.00575 -0.02584 0.9725 0.02408 0.9995 0.0076 -0.03573 1.0000 0.03380 0.9998 0.00075 -0.03573 1.0000 0.03380 0.9998 0.00075 -0.03573 1.0000 0.03380 0.9998 0.00075 | | | | 210 | U/IID | | | | |
| -0.02226 1.0000 | | | | | | | | | |
| -0.01995 | | | | | | | | | |
| -0.01772 0.9917 -0.01787 0.9987 -0.02531 0.9947 -0.0010 -0.01558 0.9745 -0.01592 0.9536 -0.02122 0.9899 -0.0014 -0.01343 0.9431 -0.01390 0.9182 -0.01713 0.9322 -0.0014 -0.01310 0.8987 -0.01166 0.8745 -0.01385 0.9759 -0.0045 -0.00855 0.8516 -0.00944 0.8291 -0.00882 0.9531 -0.0035 -0.00873 0.8091 -0.00750 0.7909 -0.00481 0.9512 -0.0052 -0.00235 0.7591 -0.00520 0.7375 0.00014 0.9346 -0.0072 -0.00310 0.7342 -0.00319 0.6091 0.00427 0.9218 -0.0052 -0.00310 0.7342 -0.00319 0.6091 0.00427 0.9218 -0.0052 -0.00230 0.7156 -0.00319 0.6016 0.00675 0.9132 -0.0058 -0.00122 0.6789 -0.00214 0.5017 0.01171 0.9019 -0.0061 -0.00078 0.2272 0.00049 0.3919 0.61171 0.9019 -0.0061 -0.00078 0.2272 0.00049 0.3919 0.6114 0.8946 -0.0076 0.00164 0.2535 0.00066 0.3772 0.0256 0.8944 -0.0077 -0.0056 0.3345 0.00066 0.3772 0.0256 0.8944 -0.0076 -0.0056 0.3345 0.00388 0.4057 0.00388 0.4057 -0.00456 0.3345 0.00388 0.4057 -0.00886 0.4057 0.00593 0.5432 0.05362 0.9644 -0.0076 -0.00886 0.4057 0.00750 0.5432 0.05362 0.9644 -0.0076 -0.00886 0.4057 0.00750 0.5432 0.05362 0.9644 -0.0076 -0.01528 0.6734 0.01400 0.7377 0.0786 0.9977 -0.0052 -0.01528 0.6734 0.01400 0.7377 0.0786 0.9977 -0.0052 -0.01528 0.6734 0.01400 0.7377 0.0786 0.9977 -0.0052 -0.01528 0.6734 0.01400 0.7377 0.0786 0.9977 -0.0052 -0.01528 0.6734 0.01400 0.7377 0.0786 0.9999 -0.0057 -0.02584 0.9725 0.02599 0.02591 0.02590 0.01880 0.09877 0.9999 -0.0057 -0.02584 0.9725 0.02599 0.02795 0.11880 0.9999 -0.0057 -0.02584 0.9725 0.02599 0.02599 0.9885 0.16273 0.9999 -0.0075 -0.03553 1.0000 0.03580 0.9998 0.24180 0.9998 0.0075 | | | | | | | | | |
| -0.01558 0.9745 -0.01592 0.9536 -0.02122 0.9899 -0.0014 -0.01353 0.9431 -0.01390 0.9182 -0.01713 0.9322 -0.0014 -0.01110 0.8987 -0.01166 0.8745 -0.01385 0.9759 -0.0043 -0.00885 0.8516 -0.00750 0.7909 -0.00481 0.9512 -0.0052 -0.00635 0.7591 -0.00520 0.7335 0.00014 0.9346 -0.0072 -0.00310 0.7342 -0.00389 0.6691 0.00447 0.9218 -0.0052 -0.00230 0.7156 -0.00319 0.6691 0.00675 0.9132 -0.0058 -0.00122 0.6789 -0.00214 0.5017 0.01171 0.9019 -0.0058 -0.00122 0.6789 -0.00214 0.5017 0.01171 0.9019 -0.0058 -0.00123 0.4668 -0.00126 0.3919 0.6016 0.8967 -0.0071 0.00078 0.2272 0.00469 0.3919 0.6016 0.8967 -0.0071 0.00078 0.2272 0.00469 0.3919 0.6016 0.8967 -0.0076 0.00164 0.2535 0.00069 0.3772 0.02363 0.8964 -0.0076 0.00250 0.2756 0.00152 0.3854 0.62661 0.8994 -0.0077 0.00683 0.4057 0.00562 0.4844 0.04527 0.9447 -0.0077 0.00686 0.4615 0.00750 0.5432 0.05562 0.9644 -0.0077 0.00886 0.4615 0.00750 0.5432 0.05562 0.99447 -0.0077 0.00886 0.4615 0.00750 0.5432 0.05562 0.99447 -0.0077 0.00886 0.4615 0.00750 0.5432 0.05562 0.99447 -0.0077 0.0128 0.8066 0.4015 0.00750 0.5432 0.05562 0.99447 -0.0077 0.0128 0.8066 0.4019 0.00750 0.5432 0.05562 0.99447 -0.0077 0.0128 0.8066 0.4019 0.00750 0.5432 0.05562 0.99447 -0.0057 0.0128 0.8066 0.001976 0.8970 0.06887 0.99977 -0.0055 0.01275 0.9913 0.00259 0.9855 0.10273 0.9999 -0.0057 0.02550 0.9983 0.02780 0.9985 0.10478 0.9999 -0.0057 0.02550 0.9983 0.02780 0.9955 0.10273 0.9999 -0.0057 0.02550 0.9983 0.02599 0.9985 0.10478 0.9999 -0.0057 0.02550 0.9983 0.025780 0.9998 0.31828 1.0000 -0.0143 | | | | | | | | | |
| -0.01343 | | | | | | | | | -0.0014 |
| -0.01110 0.8987 -0.01166 0.8745 -0.01385 0.9759 -0.0043 -0.00885 0.8516 -0.00887 -0.0088 | | | | | 0.9182 | | | | |
| -0.00885 | | | | | | | | | |
| -0.00673 | | | | | | | | | |
| -U, 00435 0,7591 -0,00520 0.7375 0.00014 0.9346 -0.0072 -0.00310 0.7342 -0.0058 0.6691 0.00675 0.9132 -0.0058 -0.00230 0.7156 -0.00219 0.6016 0.6045 0.9132 -0.0058 -0.00122 0.6789 -0.00214 0.5017 0.01171 0.9019 -0.0061 -0.0033 0.4668 -0.00126 0.4290 0.00172 0.01503 0.8967 -0.0071 0.00078 0.2272 -0.0049 0.3919 0.61948 0.8939 -0.0076 0.0076 0.2272 -0.0049 0.3772 0.01503 0.8967 -0.0076 0.00550 0.2756 0.00152 0.3854 0.02861 0.8994 -0.0077 0.00550 0.2756 0.00152 0.3854 0.02861 0.8994 -0.0077 0.00456 0.3345 0.4057 0.60552 0.4844 0.04527 0.9447 -0.0077 0.00886 0.4057 0.60562 0.4844 0.04527 0.9447 -0.0077 0.00886 0.4057 0.60562 0.4844 0.04527 0.9447 -0.0077 0.00886 0.4057 0.00750 0.5432 0.05362 0.9644 -0.0067 0.01115 0.5356 0.00750 0.5432 0.05362 0.9644 -0.0067 0.01115 0.5356 0.00750 0.5432 0.05362 0.9644 -0.0067 0.01316 0.5996 0.01193 0.6689 0.6687 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.6687 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.6687 0.9937 -0.0052 0.01732 0.7393 0.001400 0.7377 0.6687 0.9937 -0.0052 0.01728 0.8066 0.01787 0.8726 0.01400 0.7377 0.68873 0.9999 -0.0057 0.01928 0.8066 0.01787 0.8514 0.9987 0.9997 -0.0052 0.01732 0.7393 0.001400 0.7377 0.11880 0.9999 -0.0057 0.025367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0062 0.02564 0.9725 0.02765 0.02795 0 | | | | | | | | | |
| -0.00310 0.7342 -0.00389 0.6691 0.60427 0.9218 -0.0067 -0.00230 0.7156 -0.00319 0.6016 0.60675 0.9132 -0.0058 -0.00122 0.6789 -0.00213 0.5017 0.01171 0.9019 -0.0061 -0.60033 0.4668 -0.00126 0.4290 0.01503 0.8967 -0.0071 0.00078 0.2272 -0.00049 0.3919 0.61148 0.8939 -0.0076 0.00164 0.2535 0.00049 0.3919 0.61148 0.8939 -0.0076 0.00164 0.2535 0.00166 0.3772 0.02363 0.8944 -0.0086 0.00250 0.2756 0.00152 0.3854 0.62861 0.8994 -0.0077 0.6083 0.4057 0.60552 0.4844 0.63694 0.9174 -0.0076 0.6083 0.4057 0.60562 0.4844 0.60562 0.4844 0.60532 0.9644 -0.0076 0.60886 0.4615 0.60750 0.5432 0.6538 0.9644 -0.0067 0.6114 0.5535 0.00983 0.6658 0.66114 0.9820 -0.6057 0.61152 0.5356 0.60193 0.6689 0.66114 0.9820 -0.0057 0.61316 0.5096 0.61193 0.6689 0.66867 0.9930 -0.0072 0.6132 0.6734 0.01400 0.7377 0.66867 0.9930 -0.0072 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0072 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0072 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0057 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0057 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0057 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0057 0.6132 0.7393 0.6689 0.6689 0.66867 0.9930 -0.0052 0.61732 0.7393 0.6689 0.7876 0.68873 0.9999 -0.0052 0.61732 0.7393 0.6689 0.7876 0.68873 0.9999 -0.0052 0.61732 0.7393 0.6689 0.6188 0.9999 -0.0057 0.62584 0.9725 0.0052 0.01787 0.8514 0.09877 0.9997 -0.0052 0.0052 0.0053 0.7876 0.68673 0.9998 -0.0057 0.62584 0.9725 0.002191 0.9377 0.11880 0.9999 -0.0062 0.62599 0.9885 0.106108 0.9999 -0.0062 0.62599 0.9983 0.62599 0.9885 0.106108 0.9999 -0.0062 0.62599 0.9983 0.62599 0.9985 0.36273 0.9998 -0.0076 0.03573 1.0000 0.0 | | | | | | | | | |
| -0.00230 | | | | | | | | | |
| -0.00122 | | | | | | | | | |
| -0.60033 | | | | | | | | | |
| 0.0078 | | | | | | | | | |
| 0.00164 0.2535 0.00066 0.3772 0.02365 0.8944 -0.0086 0.0072 0.00250 0.2795 0.00152 0.3854 0.62861 0.8994 -0.0077 0.00456 0.3345 0.00358 0.4057 0.00358 0.4057 0.00562 0.4844 0.04527 0.9447 -0.0077 0.00886 0.4615 0.00750 0.5432 0.05362 0.9644 -0.0067 0.61115 0.5355 0.00983 0.6058 0.06114 0.9820 -0.0057 0.01316 0.5596 0.61193 0.6689 0.06887 0.9644 -0.0067 0.01528 0.6734 0.01400 0.7377 0.06867 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.07886 0.9977 -0.0052 0.61732 0.7393 0.01603 0.7876 0.08873 0.9999 -0.0057 0.01928 0.8066 0.01787 0.8514 0.09877 0.09877 0.0057 0.01928 0.8066 0.01787 0.8514 0.09877 0.9997 -0.0052 0.01928 0.8066 0.01787 0.8514 0.09877 0.9999 -0.0057 0.02367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0062 0.02584 0.9725 0.02408 0.9715 0.11908 0.9999 -0.0062 0.02599 0.9251 0.02599 0.9885 0.11908 0.9999 -0.0065 0.02599 0.9983 0.62599 0.9885 0.16103 0.9999 -0.0065 0.02559 0.9983 0.62599 0.9885 0.16103 0.9999 -0.0065 0.03372 1.0000 0.03180 0.9998 0.31828 1.0000 -0.0143 0.9998 0.031828 1.0000 -0.0143 0.9998 0.031828 1.0000 -0.0143 0.9998 0.03553 1.0000 0.03380 0.9998 0.331828 1.0000 -0.0143 0.9998 0.03553 1.0000 | | | | | | | 0.61948 | | -0.0076 |
| 0.00250 | | | | | | | | | |
| 0.00456 0.3345 0.00348 0.4274 0.03694 0.9174 -0.0076 0.00683 0.4057 0.60562 0.4844 0.04527 0.9447 -0.0077 0.00886 0.4615 0.00750 0.5432 0.05362 0.9644 -0.0067 0.61115 0.55356 0.00983 0.6088 0.06114 0.9820 -0.0057 0.01316 0.5996 0.01193 0.6689 0.06867 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.67786 0.9977 -0.0052 0.61732 0.7393 0.61603 0.7876 0.68873 0.9999 -0.0052 0.61732 0.7393 0.6163 0.7876 0.68873 0.9999 -0.0052 0.61732 0.8795 0.8066 0.01787 0.8514 0.09877 0.9997 -0.0057 0.62367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0062 0.02584 0.9725 0.02491 0.9377 | | | | | | | 0.62861 | 0.8994 | -0.0077 |
| 0.00883 0.4457 0.66562 0.4844 0.04527 0.9447 -0.0077 0.60886 0.4615 0.00750 0.5432 0.05362 0.9644 -0.0067 0.61115 0.5356 0.00983 0.6058 0.66114 0.9820 -0.0057 0.61316 0.5096 0.61193 0.6689 0.66867 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.67866 0.9977 -0.0052 0.61732 0.7593 0.01603 0.7876 0.68873 0.9999 -0.0057 0.41732 0.8786 0.01787 0.8514 0.09877 0.9997 -0.0057 0.41928 0.8086 0.01787 0.8514 0.09877 0.9997 -0.0043 0.02137 0.8726 0.01976 0.8970 0.10987 0.9999 -0.0062 0.02367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0075 0.02584 0.9725 0.02408 0.9985 0.11963 | | | | | | | 0.03694 | 0.9174 | |
| 0.00886 | | | | | | | 0.04527 | 0.9447 | -0.0077 |
| 0.01115 0.5556 0.00983 0.6058 0.66114 0.9820 -0.0057 0.01316 0.5096 0.61193 0.6689 0.06867 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.67786 0.9977 -0.0052 0.61732 0.7393 0.66867 0.9987 0.9999 -0.0057 0.01928 0.8066 0.01787 0.8514 0.09877 0.9997 -0.0043 0.02137 0.8726 0.01976 0.8970 0.10987 0.9999 -0.0043 0.02367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0067 0.02584 0.9725 0.02408 0.9715 0.11903 0.9999 -0.0075 0.02775 0.9913 0.62599 0.9885 0.16108 0.9999 -0.0062 0.02959 0.9983 0.62780 0.9985 0.16273 0.9998 -0.0076 0.03372 1.0000 0.03196 0.9998 0.24180 0.9998 0.016273 0.9998 -0.0163 0.03375 0.0000 | | | | | | | 0.05362 | 0.9644 | |
| 0.01316 0.5996 0.01193 0.6689 0.06867 0.9930 -0.0072 0.01528 0.6734 0.01400 0.7377 0.67786 0.9977 -0.0052 0.01732 0.7393 0.01603 0.7876 0.68573 0.9999 -0.0057 0.01928 0.8086 0.01787 0.8514 0.09877 0.9997 -0.0043 0.02137 0.8726 0.01976 0.8970 0.10982 0.9999 -0.0062 0.02367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0067 0.02584 0.9725 0.02408 0.9715 0.11880 0.9999 -0.0067 0.02584 0.9725 0.02599 0.9885 0.11963 0.9999 -0.0062 0.02959 0.9983 0.62599 0.9885 0.16273 0.9998 -0.0075 0.02599 0.9983 0.62592 0.9985 0.16273 0.9998 -0.0076 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0076 0.03372 1.0000 0.03182 0.00998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03380 0.9998 0.9985 | | | | 0.00983 | | | 0.06114 | 0.9820 | -0.0057 |
| 0.01528 | | | | | | | 0.06867 | 0.9930 | |
| 0.01732 | | | | 0.01400 | 0.7377 | | 0.47786 | 0.9977 | -0.0052 |
| 0.01928 | | | | | | | | | -0.0057 |
| 0.02137 0.8726 0.01976 0.8970 0.10962 0.9999 -0.0062 0.02367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0067 0.02584 0.9725 0.02408 0.9715 0.11983 0.9999 -0.0075 0.02775 0.9913 0.02599 0.9885 0.116108 0.9999 -0.0062 0.02959 0.9983 0.62780 0.9955 0.16273 0.9998 -0.0076 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0165 0.03372 1.0000 0.03180 0.9998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03380 0.9998 | | | | | | | | | |
| 0.12367 0.9295 0.02191 0.9377 0.11880 0.9999 -0.0067 0.02584 0.9725 0.02408 0.9715 0.11863 0.9999 -0.0075 0.02775 0.9013 0.02599 0.9885 0.16103 0.9999 -0.0062 0.02959 0.9983 0.02780 0.9955 0.16273 0.9998 -0.0076 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0105 0.03372 1.0000 0.03196 0.9998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03380 0.9998 | | | | | | | | | |
| 0.02584 0.9725 0.07408 0.9715 0.11963 0.9999 -0.0075 0.02775 0.9913 0.02599 0.9885 0.16103 0.9999 -0.0062 0.02599 0.9983 0.62780 0.9955 0.16273 0.9998 -0.0076 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0105 0.03372 1.0000 0.03196 0.9998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03880 0.9998 | | | | | | | | | -0.0067 |
| 0.02775 0.9913 0.02599 0.9885 0.16108 0.9999 -0.0062 0.02959 0.9983 0.62780 0.9955 0.16273 0.9998 -0.0076 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0105 0.03372 1.0000 0.03196 0.9998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03380 0.9998 | | | | | | | | | |
| 0.02959 0.9983 0.62780 0.9955 0.16273 0.9998 -0.0076 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0105 0.63372 1.0000 0.03186 0.9998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03380 0.9998 | | | | 0.02599 | | | | | -0.0062 |
| 0.03173 1.0000 0.02592 0.9985 0.24180 0.9998 -0.0105 0.03372 1.0000 0.03196 0.9998 0.31828 1.0000 -0.0143 0.03553 1.0000 0.03380 0.9998 | | | | | | | | | |
| 0.03372 1.0000 | | | | | | | | | |
| 0.03553 1.0000 0.03380 0.9998 | | | | | | | 0.31828 | 1.0000 | -0.0143 |
| | | | | | | | | | |
| | | | | 6.03574 | 1.0000 | | | | |

Table 6.8 (continued)

CASE 4 PROBES E

M= 0.725 ALPHA= 2.92 RE=6500000

| x/c= 0 152 | Y/C= 1.17 | LOWER | x/c= 0 152 | v/C= 2.42 | LOWER | x/c= 0 179 | Y/C= 1.04 UP | PER |
|--------------|--------------|-------|-------------|-------------|-------|--------------|-----------------|------|
| CONSTANT CPC | STATIC)= -0 | .012 | CONSTANT CP | STATIC)= -0 | .012 | CONSTANT CPE | TATIC)1.029 | |
| 2/0 | U/UP | | 2/0 | U/IIP | | 2/0 | U/IIP | |
| 0.00017 | 0.6854 | | 0.00012 | 0.5873 | | 0.00017 | 0.6102 | |
| | 0.7374 | | 0.00038 | 0.7174 | | 0.00027 | 0.6565 | |
| 0.00028 | | | 0.00062 | 0.7617 | | | 0.6792 | |
| 0.00032 | 0.7580 | | 0.00082 | 0.8134 | | 0.00038 | | |
| 0.00042 | 0.7840 | | 0.00102 | 0.8578 | | 0.00050 | 0.7140 | |
| 0.00049 | 0.8121 | | 0.00126 | 0.8986 | | 0.00060 | 0.7401 | |
| 0.00062 | 0.8364 | | 0.00152 | 0.9313 | | 0.00073 | 0.7645 | |
| 0.00076 | 0.8667 | | | 0.9581 | | 0.00085 | 0.7879 | |
| 0.00095 | 0.8998 | | 0.00176 | 0.9743 | | 0.00108 | 0.8205 | |
| 0.00122 | 0.9337 | | 0.00104 | | | 0.0012A | 0.8541 | |
| 0.00140 | 0.9582 | | 0.00227 | 0.9917 | | 0.00150 | 0.8836 | |
| 0.00162 | 0.9755 | | 0.00250 | 0.9984 | | 0.00171 | 0.9041 | |
| 0.00185 | 0.9883 | | 0.00306 | 1.0106 | | 0.00192 | 0.9260 | |
| 0.00210 | 0.9945 | | 0.0035A | 0.9999 | | 0.00214 | 0.9470 | |
| 0.00222 | 0.9976 | | 0.00400 | 1.0000 | | 0.00235 | 0.9626 | |
| 0.00267 | 0.9996 | | 0.00448 | 1.0000 | | 0.00274 | 0.9855 | |
| 0.00312 | 0.9999 | | 0.00491 | 1.0000 | | 0.00315 | 0.9949 | |
| 0.00362 | 1.0001 | | | | | 0.00359 | 0.9996 | |
| 0.00401 | 1.0000 | | | | | 0.00406 | 1.0000 | |
| | | | | | | 0.00444 | 1.0000 | |
| | | | | | | 0.00477 | 1.0000 | |
| | | | | | | | | |
| x/c= 0.179 | V/C■ 2.20 | UPPER | x/C= 0 319 | V/C= 1.15 | UPPER | x/c= 0 319 | V/C= 2.40 U | PPER |
| CONSTANT CP | (STATIC)= -1 | .029 | CONSTANT CP | STATIC)= -1 | .115 | CONSTANT CP | STATIC) = -1.11 | 5 |
| 2/0 | U/IIP | | 2/0 | U/IIP | | 2/0 | U/UP | |
| 0.00015 | 0.5634 | | 0.00017 | 0.5675 | | 0.00013 | 0.5462 | |
| 0.00024 | 0.6278 | | 0.00028 | 0.6267 | | 0.00021 | 0.5929 | |
| 0.00035 | 0.6856 | | 0.00038 | 0.6579 | | 0.00032 | 0.6444 | |
| 0.00046 | 0.7135 | | 0.00046 | 0.6734 | | 0.00045 | 0.6709 | |
| 0.00060 | 0.7480 | | 0.00057 | 0.6969 | | 0.00057 | 0.6998 | |
| 0.00077 | 0.7718 | | 0.00071 | 0.7165 . | | 0.00070 | 0.7200 | |
| 0.00093 | 0.7076 | | 0.00081 | 0.7345 | | 0.00087 | 0.7447 | |
| 0.00113 | 0.8794 | | 0.00098 | 0.7523 | | 0.00117 | 0.7736 | |
| 0.00141 | 0.8630 | | 0.00118 | 0.7733 | | 0.00144 | 0.8012 | |
| 0.00166 | 0.8884 | | 0.00139 | 0.7974 | | 0.00169 | 0.8197 | |
| 0.00190 | 0.9118 | | 0.00169 | 0.8183 | | 0.00191 | 0.8376 | |
| 0.00211 | 0.9294 | | 0.00191 | 0.8342 | | 0.00207 | 0.8510 | |
| 0.00236 | 0.9538 | | 0.00215 | C.8498 | | 0.00236 | 0.8721 | |
| 0.00275 | 0.9742 | | 0.00237 | 0.8669 | | 0.00269 | 0.8937 | |
| 0.00323 | 0.9941 | | 0.00256 | 0.8804 | | 0.00323 | 0.9266 | |
| 0.00375 | 0.9991 | | 0.00297 | 0.9041 | | 0.00370 | 0.9505 | |
| 0.00414 | 0.9998 | | 0.00341 | 0.9297 | | 0.00405 | 0.9656 | |
| 0.00459 | 1.0000 | | 0:00384 | 0.9516 | | 0.00453 | 0.9832 | |
| 0.00507 | 1.0000 | | 0.00425 | 0.9698 | | 0.00510 | 0.9932 | |
| | | | 0.00469 | 0.9838 | | 0.00549 | 0.9983 | |
| | | | 0.00493 | 0.9918 | | 0.00589 | 0.9994 | |
| | | | 0.00538 | 0.9965 | | 0.00631 | 0.9999 | |
| | | | 0.00577 | 0.9995 | | 0.00676 | 1.0000 | |
| | | | 0.00618 | 1.0000 | | 0.00768 | | |
| | | | 0.00653 | 1.0000 | | 0.00921 | 1.0000 | |
| | | | 0.00633 | | | 0.00921 | 1.0000 | |

Table 6.8 (continued)

CASE 6 PROBES & (concluded)

M= 0.725 ALPHA= 2.92 RE=6500000

| x/C= 0 900 | Y/C= 2.64 UPPER | x/c= 0 950 | Y/C= 2.44 IJPPER |
|-------------|------------------|-------------|------------------|
| CONSTANT CP | STATIC) = -0.037 | CONSTANT CP | STATIC)= 0.059 |
| 2/0 | U/Up | 2/0 | U/11ª |
| 0.00115 | 0.3642 | 0.00073 | 0.2874 |
| 0.00162 | 0.3904 | 0.00112 | 0.3057 |
| 0.00208 | 0.4047 | 0.00173 | 0.3306 |
| 0.00300 | 0.4304 | 0.00235 | 0.3514 |
| 0.00396 | 0.4643 | 0.00280 | 0.3621 |
| 0.00466 | 0.4840 | 0.00472 | 0.4116 |
| 0.00606 | 0.5260 | 0.00686 | 0.4657 |
| 0.00923 | 0.6201 | 0.01000 | 0.5512 |
| 0.01217 | 0.7167 | 0.01291 | 0.6350 |
| 0.01500 | 0.8150 | 0.01596 | 0.7254 |
| 0.01790 | 0.8929 | 0.01885 | 0.8088 |
| 0.02076 | 0.9586 | 0.02173 | 0.8843 |
| 0.02337 | 0.9845 | 0.02433 | 0.9370 |
| 0.02633 | 0.9940 | 0.02733 | 0.9795 |
| 0.02890 | 1.0000 | 0.03005 | 0.9959 |
| 0.026*11 | 1.0000 | 0.03243 | 0.9997 |
| | | 0.03509 | 1.0000 |
| | | 0.412 | |
| | | | |

| x/C= 1.000 | V/C= 2.02 | AKE X/C= 1.025 | y/C= 7.82 | WAKE | x/c= 2 000 | v/C= 1.50 | WAKE |
|-------------|----------------|----------------|-------------|------|------------|-----------|-------------|
| CONSTANT CD | (STATIC)= 0.14 | CONSTANT CP | STATIC) = 0 | .143 | 2/0 | U/IID | CP (STATIC) |
| | | | | | -0.07712 | 1.0000 | 0.0071 |
| 2/0 | U/UP | 2/0 | U/UP | | -0.07398 | 1.0000 | 0.0055 |
| -0.02583 | 1.0000 | -0.02847 | 1.0000 | | -0.06134 | 1.0003 | 0.0047 |
| -0.02270 | 1.0000 | -0.02614 | 0.9994 | | -0.0493A | 0.9998 | 0.0062 |
| -0.01978 | 0.9976 | -0.02310 | 0.9981 | | -0.04135 | 0.9993 | 0.0059 |
| -0.01684 | 0.9850 | -0.02022 | 0.9912 | | -0.03086 | 0.9970 | 0.0036 |
| -0.01397 | 0.9513 | -0.01742 | 0.9691 | | -0.02030 | 0.9889 | 0.0038 |
| -0.01097 | 0.8969 | -0.01476 | 0.9284 | | -0.01215 | 0.9747 | 0.0007 |
| -0.00805 | 0.8419 | -0.01188 | 0.8767 | | -0.00478 | 0.9586 | 0.0002 |
| -0.00505 | 0.7869 | -0.00913 | 0.8240 | | 0.00591 | 0.9303 | -0.0017 |
| -0.00293 | 0.7452 | -0.00650 | 0.7688 | | 0.02077 | 0.9035 | -0.0010 |
| -0.00095 | 0.6699 | -0.00449 | 0.6657 | | 0.02853 | 0.9022 | -0.0006 |
| 0.00033 | 0.2257 | -0.00361 | 0.5758 | | 0.04682 | 0.9247 | -0.0026 |
| 0.00113 | 0.2574 | -0.00273 | 0.4879 | | 0.05849 | 0.9456 | -0.0010 |
| 0.00405 | 0.3233 | -0.00182 | 0.4204 | | 0.07269 | 0.9715 | -0.0009 |
| 0.00692 | 0.3841 | -0.00069 | 0.3903 | | 0.08105 | 0.9793 | 0.0003 |
| 0.00945 | 0.4577 | 0.00237 | 0.4001 | | 0.09527 | 0.9858 | -0.0021 |
| 0.01273 | 0.5291 | 0.00512 | 0.4551 | | 0.10948 | 0.9903 | -0.0017 |
| 0.01562 | 0.6058 | 0.00792 | 0.5302 | | 0.11950 | 0.9915 | -0.0013 |
| 0.01855 | 0.6930 | 0.01076 | 0.6091 | | 0.12951 | 0.9943 | -0.0032 |
| 0.02137 | 0.7739 | 0.01357 | 0.6858 | | 0.16933 | 0.0949 | -0.0041 |
| 0.02376 | 0.8333 | 0.01645 | 0.7726 | | 0.25173 | 0.9990 | -0.0085 |
| 0.02632 | 0.8921 | 0.01910 | 0.8440 | | 0.32972 | 0.9999 | -0.0144 |
| 0.02928 | 0.9425 | 0.02140 | 0.9028 | | 0.39742 | 1.0000 | -0.0160 |
| 0.03181 | 0.9753 | 0.02399 | 0.9472 | | | | V. 0100 |
| 0.03451 | 0.9916 | 0.02665 | 0.9803 | | | | |
| 0.03708 | 0.9993 | 0.02905 | 0.9944 | | | | |
| 0.03975 | 1,0000 | 0.03182 | 0.9986 | | | | |
| | | 0.03432 | 1.0000 | | | | |

Table 6.8 (continued)

CASE 7 PRORES &

M=0.725 ALPHA= 2.55 PE=6500000

| x/C= 0.152 | V/C= 1.17 LOWER | x/C= 0.152 | V/C= 2.47 LOWER | ×/C= 0 179 | Y/C= 1.04 UPPER |
|--------------|------------------|--------------|------------------|-------------|------------------|
| CONSTANT CPC | STATIC) = -0.051 | CONSTANT CPC | STATIC)= -0.051 | CONSTANT CP | STATIC) = -0.968 |
| | | 7/0 | U/.1P | 2/0 | U/UD |
| 2/0 | U/IIP | | 0.7308 | 0.00031 | 0.6937 |
| 0.00015 | 0.6703 | 0.00034 | 0.7910 | 0.00050 | 0.7407 |
| 0.10036 | 0.7652 | 0.00080 | 0.8364 | 0.00089 | 0.8171 |
| 0.00047 | 0.8036 | | 0.8755 | 0.00108 | 0.8427 |
| 0.00068 | 0.8502 | 0.00104 | 0.9059 | 0.00128 | 0.8730 |
| 0.00087 | 0.8357 | 0.00121 | 0.9335 | 0.00150 | 0.8981 |
| 0.00108 | 1.9139 | 0.00145 | 0.9588 | 0.00179 | 0.9404 |
| 0.00126 | 0.9399 | 0.00170 | | 0.00190 | 0.9454 |
| 0.00149 | 0.9618 | 0.00187 | 0.9743 | 0.00226 | 0.9704 |
| 0.00182 | 0.9868 | 0.00224 | 0.9926 | 0.00250 | 0.9836 |
| 0.00205 | 0.9945 | 0.00254 | 0.9987 | | 0.9256 |
| 0.00233 | 1.9900 | 0.00286 | 1.0000 | 0.00293 | |
| 0.00261 | 0.9999 | 0.00334 | 1.0000 | 0.00313 | 0.9980 |
| 0.00287 | 1.0200 | | | 0.00329 | 0.9989 |
| 0.00305 | 1.0 00 | | | 0.00344 | 0.9995 |
| 0.00326 | 1.0002 | | | 0.00373 | 1.0000 |
| 0.00345 | 1.0000 | | | 0.00393 | 1.0000 |
| 0.00366 | 1.0000 | | | 0.00410 | 0.9999 |
| | | | | 0.00434 | 1.0000 |
| | | | | | |
| x/C= 0.179 | Y/C= 2.29 UPPER | x/c= 0.319 | Y/C= 1.15 UPPER | x/c= 0 319 | Y/Cm 2.40 UPPER |
| CONSTANT CP | STATIC) = -0.068 | CONSTANT CP | STATIC) = -1.025 | CONSTANT CP | STATIC)= -1.025 |
| 2/0 | פני/ט | 2/0 | U/IJP | 2/0 | U/up |
| 0.00015 | 0.5995 | 0.00015 | 0.5562 | 0.00016 | 0.5545 |
| 0.00033 | 0.6893 | 0.00025 | 0.6073 | 0.00034 | 0.6273 |
| 0.00044 | 0.7334 | 0.00048 | 0.6743 | 0.00045 | 0.6699 |
| 0.00065 | 0.7752 | 0.00065 | 0.7052 | 0.00065 | 0.7067 |
| 0.00083 | 0.8037 | 0.00092 | 0.7386 | 0.00084 | 0.7344 |
| 0.00104 | 0.8327 | 0.00109 | 0.7623 | 0.00105 | 0.7628 |
| 0.00125 | 0.8611 | 0.00126 | 0.7798 | 0.00125 | 0.7398 |
| 0.00150 | 0.8840 | 0.00147 | 0.8007 | 0.00151 | 0.8103 |
| 0.00170 | 0.9028 | 0.00169 | 0.8199 | 9.00170 | 0.8262 |
| 0.00193 | 0.9226 | 0.00208 | 0.8502 | 0.00191 | 0.8431 |
| 0.00215 | 0.9363 | 0.00223 | 0.8632 | 0.00212 | 0.8565 |
| | 0.9598 | 0.00255 | 0.8844 | 0.00239 | 0.8793 |
| 0.00246 | 1.9772 | 0.00283 | 0.9023 | 0.00270 | 0.9003 |
| 0.00312 | 0.9919 | 0.00305 | 0.9166 | 0.00306 | 0.9257 |
| | 0.9958 | 0.00323 | 0.9253 | 0.00332 | 0.9379 |
| 0.00337 | 0.9981 | 0.00344 | 0.9374 | 0.00350 | 0.9476 |
| 0.00355 | 0.9991 | 0.00361 | 0.9449 | 0.00373 | 0.9583 |
| 0.00377 | 0.9998 | 0.00380 | 0.9549 | 0.00408 | 0.9689 |
| 0.00411 | | 0.00402 | 0.9650 | 0.00430 | 0.9771 |
| 0.00434 | 0.9999 | 0.00419 | 0.9713 | 0.00444 | 0.9827 |
| 0.00448 | 1.0000 | 0.00443 | 0.9789 | 0.00471 | 0.9895 |
| | | 0.00470 | 0.9858 | 0.00493 | 0.9940 |
| | | 0.00489 | 0.9903 | 0.00511 | 0.9961 |
| | | 0.00538 | 0.9961 | 0.00534 | 0.9977 |
| | | 0.00577 | 0.9985 | 0.00576 | 0.9005 |
| | | 85000.0 | 0.9993 | 0.03619 | 0.9999 |
| | | 0.00670 | 0.9996 | 0.00656 | 1.0001 |
| | | 0.00725 | 1.0000 | 0.00711 | 1.0000 |
| | | 0.00744 | 1.0000 | 0.00756 | 1.0000 |
| | | | 1.000 | | |

Table 6.8 (continued)

CASE 7 PROBES B (concluded)

M=0.725 ALPHA= 2.55 RE=6500000

| x/C= 0.900 | V/C= 2.64 UPPER | x/c=0.950 | Y/C= 2 44 | UPPER |
|--------------|------------------|-------------|-------------------|-------|
| CONSTANT CPE | STATIC) = -0.027 | CONSTANT CP | = (0 1 T A T 2) | 0.070 |
| 2/0 | U/IIP | 7/0 | U/IIP | |
| 0.00066 | 0.3199 | 0.00057 | 0.2783 | |
| 0.00103 | 0.3371 | 0.00102 | | |
| 0.00169 | 0.3744 | 0.00156 | 0.3224 | |
| 0.00206 | 0.3883 | 0.00203 | 0.3339 | |
| 0.00262 | 0.4102 | 0.00248 | 0.3495 | |
| 0.00422 | 0.4649 | 0.00417 | 0.3963 | |
| 0.00545 | 0.5066 | 0.00563 | 0.4366 | |
| 0.00702 | 0.5658 | 0.00700 | 0.4899 | |
| 0.00843 | 0.6130 | 0.00845 | 0.5327 | |
| 0.01002 | 0.6703 | 0.01000 | 0.5837 | |
| 0.01143 | 0.7199 | 0.01150 | 0.6294 | |
| 0.01301 | 0.7335 | 0.01322 | 0.6837 | |
| 0.01446 | 0.8407 | 0.01471 | 0.7400 | |
| 0.01591 | 0.8889 | 0.01627 | 0.7892 | |
| 0.01754 | 0.9333 | 0.01782 | 0.8420 | |
| 0.01911 | 0.9592 | 0.01942 | 0.8796 | |
| 0.02076 | 0.9849 | 0.02109 | 0.9265 | |
| 0.02312 | 0.9977 | 0.02347 | 0.9650 | |
| 0.02602 | 1,0001 | 0.02637 | 0.9905 | |
| 0.02843 | 1.0000 | 0 02895 | 0.9992 | |
| 0.03354 | 1.0000 | 0.03157 | 1,0000 | |
| 0.03374 | 1.0000 | 0.031.77 | | |
| | | | | |

| x/c= 1.000 | Y/C= 2.02 WAKE | x/C= 1.025 | y/C= 2.82 U | AKE X/C= 2.000 | y/C= 1.50 | WAKE |
|-------------|-----------------|-------------|---------------|----------------|-----------|------------|
| CONSTANT CO | STATIC) = 0.151 | CONSTANT CP | STATIC)= 0.15 | 1 2/0 | U/UP | CP(STATIC) |
| | 3, | | | -0.16180 | 1.0000 | 0.0113 |
| 2/0 | U/Up | 2/0 | U/UP | -0.11863 | 1.0000 | 0.0086 |
| -0.02511 | 1,0000 | -0.02533 | 1.0000 | -0.09549 | 0.9994 | 0.0117 |
| -0.02188 | 0.9992 | -0.02223 | 0.9969 | -0.08216 | 0.9994 | 0.0128 |
| -0.01831 | 0.9902 | -0.01868 | 0.9787 | -0.07267 | 0.9996 | 0.0090 |
| -0.01468 | 0.9617 | -0.01578 | 0.9423 | -0.06490 | 0.9994 | 0.0113 |
| -0.01182 | 0.9072 | -0.01281 | 0.8846 | -0.05348 | 0,9993 | 0.0101 |
| -0.00856 | 0.8387 | -0.00950 | 0.8209 | -0.03895 | 0.9989 | 0.0046 |
| -0.00512 | 0.7758 | -0.00642 | 0.7574 | -0.03000 | 0.9951 | 0.0073 |
| -0.00280 | 0.7353 | -0.00440 | 0.6466 | -0.02265 | 0.9890 | 0.0009 |
| -0.00197 | 0.7099 | -0.00361 | 0.5654 | -0.01446 | 0.9749 | 0.0029 |
| -0.00106 | 0.6630 | -0.00273 | 0.4766 | -0.00624 | 0.9544 | 0.0006 |
| 0.00024 | 0.1992 | -0.00182 | 0.4110 | 0.00200 | 0.9296 | -0.0049 |
| 0.00097 | 0.2245 | -0.00099 | 0.3779 | 0.01027 | 0.9135 | -0.0009 |
| 0.00174 | 0.2421 | 0.00015 | 0.3673 | 0.01803 | 0.9040 | -0.0006 |
| 0.00418 | 0.3078 | 0.00273 | 0.4026 | 0.02800 | 0.9073 | -0.0001 |
| 0.00743 | 0.3927 | 0.00574 | 0.4856 | 0.03633 | 0.9172 | -0.0014 |
| 0.01036 | 0.4733 | 0.00844 | 0.5688 | 0.04383 | 0.9325 | -0.0030 |
| 0.01355 | 0.5777 | 0.01170 | 0.6710 | 0.05050 | 0.9496 | -0.0014 |
| 0.01610 | 0.6702 | 0.01434 | 0.7523 | 0.06053 | 0.9692 | -0.0022 |
| 0.01897 | 0.7588 | 0.01708 | 0.8316 | 0.06805 | 0.9830 | -0.0005 |
| 0.02162 | 0.8456 | 0.01964 | 0.9046 | 0.07390 | 0.9874 | -0.0010 |
| 0.02421 | 0.9147 | 0.02217 | 0.9553 | 0.08478 | 0.9933 | -0.0029 |
| 0.02670 | 0.9586 | 0.02455 | 0.9799 | 0.09063 | 0.9937 | -0.0034 |
| 0.02969 | 0.9910 | 0.02713 | 0.9953 | 0.09983 | 0.9952 | 0.0009 |
| 0.03210 | 0.9985 | 0.02935 | 0.9990 | 0.10901 | 0.6969 | -0.0010 |
| 0.03346 | 0.9992 | 0.03245 | 0.9998 | 0.11735 | 0.9972 | -0.0019 |
| 0.03480 | 1.0002 | 0.03511 | 1.0000 | 0.16129 | 0.9990 | -0.0046 |
| 0.03613 | 1.0000 | | | 0.24590 | 0.9998 | -0.0066 |
| | | | | 0.31622 | 0.9997 | -0.0121 |
| | | | | 0.38609 | 1.0000 | -0.0137 |

Table 6.8 (continued)

CASE A PRORES B

M=0.728 ALPHA= 3.22 RE=6500000

| x/c= 0.152 | Y/C= 1.17 LOWER | x/c= 0.152 Y/C= 2.42 LOWER | x/C= 0.179 Y/C= 1.04 UPPER |
|-------------|-------------------|----------------------------------|----------------------------------|
| CONSTANT CP | STATIC) = 0.012 | CONSTANT CP(STATIC) = 0.012 | CONSTANT CP(STATIC) = -1.093 |
| 2/0 | U/UP | 2/C U/11P | Z/C U/UP |
| 0.00015 | 0.6623 | 0.00012 0.5899 | 0.00011 0.5585 |
| 0.00027 | 0.7215 | 0.00016 0.6346 | 0.00020 0.6105 |
| 0.00040 | 0.7725 | 0.00038 0.7318 | 0.00036 0.6793 |
| 0.00057 | 0.8253 | 0.00058 0.7799 | 0.00061 0.7421 |
| 0.00072 | 0.8355 | 0.00073 0.8211 | 0.00074 0.7731 |
| 0.00087 | 0.8896 | 0.00088 0.8441 | 0.00094 0.8078 |
| 0.00108 | 0.9134 | 0.00093 0.8541 | 0.00117 0.8389 |
| 0.00120 | 0.9314 | 0.00110 0.8801 | 0.00123 0.8471 |
| 0.00139 | 0.9556 | 0.00128 0.9054 | 0.00143 0.8780 |
| 0.00155 | 0.9689 | 0.00141 0.9275 | 0.00153 0.8942 |
| 0.00168 | 0.9796 | 0.00163 0.9491 | 0.00167 0.9088 |
| 0.00186 | 0.9888 | 0.00176 0.9669 | 0.00187 0.9267 |
| 0.00202 | 0.9934 | | 0.00200 0.9399 0.00215 0.9533 |
| 0.00226 | 0.9985 | | 0.00234 0.9679 |
| 0.00243 | 0.9993 | 0.00243 0.9968 0.00271 0.9993 | 0.00249 0.9779 |
| 0.00262 | 1.0000 | 0.00290 0.9998 | 0.00267 0.9859 |
| 0.00275 | 0.9999 | 0.00312 1.0000 | 0.00277 0.9923 |
| 0.00293 | 1.0000 | 0.00326 1.0001 | 0.00293 0.9961 |
| | 1.0300 | 0.00347 1.0000 | 0.00304 0.9980 |
| | | 0.00370 1.0000 | 0.00322 0.9988 |
| | | 01.003.0 | 0.00332 0.9993 |
| | | | 0.00351 0.9998 |
| | | | 0.00366 0.9999 |
| | | | 0.00398 0.9998 |
| | | | 0.00415 1.0060 |
| x/c= 0.179 | Y/C= 2.20 UPPER | X/C= 0.319 Y/C= 1.15 UPPER | X/C= 0.319 V/C= 2.40 UPPER |
| CONSTANT CP | (STATIC) = -1.093 | CONSTANT CP(STATIC) = -1.168 | CONSTANT CP(STATIC) = -1.168 |
| *** | 11/110 | Z/C U/119 | Z/C U/UP |
| 0.00015 | U/UP 0.5988 | 0.00023 0.6037 | 2/C U/UP 0.00016 0.5732 |
| 0.00020 | 0.6429 | 0.00032 0.6380 | 0.00020 0.6057 |
| 0.00035 | 0.7095 | 0.00047 0.6759 | 0.00038 0.6614 |
| 0.00053 | 0.7530 | 0.00073 0.7171 | 0.00055 0.6990 |
| 0.00065 | 0.7767 | 0.00086 0.7380 | 0.00066 0.7197 |
| 0.00093 | 0.8108 | 0.00107 0.7618 | 0.00068 0.7234 |
| 0.00097 | 0.8193 | 0.00121 0.7789 | 0.00080 0.7430 |
| 0.00116 | 0.8487 | 0.00130 0.7882 | 0.00089 0.7504 |
| 0.00132 | 0.8702 | 0.00153 0.8097 | 0.00096 0.7580 |
| 0.00148 | 0.8377 | 0.00166 0.8226 | 0.00105 0.7652 |
| 0.00170 | 0.9066 | 0.00181 0.8335 | 0.00122 0.7825 |
| 0.00184 | 0.9240 | 0.00199 0.8453 | 0.00138 0.7985 |
| 0.00209 | 0.9395 | 0.00210 0.8555 | 0.00156 0.8130 |
| 0.00225 | 0.9583 | 0.00227 0.8657 | 0.00174 0.8294 |
| 0.00248 | 0.9718 | 0.00245 0.8783 0.00255 0.8376 | 0.00196 0.8426 |
| 0.00280 | 0.9863 | 0.00255 0.8376 0.00273 0.8972 | 0.00210 0.8542 |
| 0.00296 | 0.9921 | 0.00288 0.9057 | 0.00234 0.8708 |
| 0.00317 | 0.9957 | 0.00307 0.9167 | 0.00252 0.8353 |
| 0.00333 | 0.9982 | 0.00315 0.9238 | 0.00283 0.9043 0.00305 0.9148 |
| 0.00350 | 0.9797 | 0.00334 0.9323 | 0.00320 0.9272 |
| 0.00393 | 0.9799 | 0.00344 0.9380 | 0.00338 0.9365 |
| 0.00409 | 1.0000 | 0.00365 0.9484 | 0.00362 0.9484 |
| 0.00438 | 1.0000 | 0.00380 0.9573 | 0.00375 0.9558 |
| 0.00470 | 1.0000 | 0.00406 0.9670 | 0.00392 0.9643 |
| | | 0.00428 0.9749 | 0.00420 0.9722 |
| | | 0.00453 0.9824 | 0.00444 0.9819 |
| | | 0.00484 0.9895 | 0.00469 0.9388 |
| | | 0.00540 0.9969 | 0.00505 0.9931 |
| | | 0.00560 0.9979 | 0.00524 0.9962 |
| | | 0.00593 0.9995 | 0.00552 0.9983 |
| | | 0.00614 0.9996 0.00642 0.9999 | 0.00581 0.9995 |
| | | 0.00642 0.9999 0.00667 1.0000 | 0.00612 0.9999 |
| | | 0.00688 1.0000 | 0.00635 0.9998 |
| | | | 0.00662 1.0000 |

Table 6.8 (continued)

CASE & PROBES B (concluded)

M=0.728 ALPHA= 3.22 RE=6500000

| x/C= 0.900 | Y/C= 2.64 UPPER | x/c= 0.950 | Y/C= 2.44 UPPER |
|-------------|------------------|-------------|------------------|
| CONSTANT CP | (STATIC)= -0.026 | CONSTANT CP | (STATIC) = 0.062 |
| 2/0 | U/IIP | 2/0 | U/UP |
| 0.00122 | 0.3608 | 0.00078 | 0.2927 |
| 0.00253 | 0.3977 | 0.00170 | 0.3267 |
| 0.00351 | 0.4280 | 0.00300 | 0.3565 |
| 0.00491 | 0.4543 | 0.00407 | 0.3824 |
| 0.00640 | 0.4954 | 0.00545 | 0.4014 |
| 0.00797 | 0.5398 | 0.00698 | 0.4367 |
| 0.00957 | 0.5740 | 0.00858 | 0.4802 |
| 0.01106 | 0.6101 | 0.01013 | 0.5098 |
| 0.01257 | 0.6687 | 0.01320 | 0.5919 |
| 0.01402 | 0.7035 | 0.01476 | 0.6191 |
| 0.01564 | 0.7520 | 0.01640 | 0.6629 |
| 0.01718 | 0.3077 | 0.01795 | 0.7157 |
| 0.01885 | 0.8541 | 0.01963 | 0.7628 |
| 0.02058 | 0.8381 | 0.02123 | 0.7929 |
| 0.02219 | 0.9227 | 0.02289 | 0.8360 |
| 0.02387 | 0.0504 | 0.02463 | 0.8720 |
| 0.02633 | 0.9782 | 0.02715 | 0.9176 |
| 0.02898 | 0.9934 | 0.02996 | 0.9568 |
| 0.03212 | 0.9995 | 0.03312 | 0.9837 |
| 0.03422 | 0.9099 | 0.03508 | 0.9930 |
| 0.03672 | 1.0000 | 0.03782 | 0.9059 |
| | | 0.04029 | 1.0003 |
| | | 0.04301 | 1.0000 |
| | | | |

| x/c= 1.025 | Y/C# 2.82 WAKE | x/c= 2.000 | Y/C= 1.5 | O WAKE |
|-------------|-----------------|------------|----------|------------|
| CONSTANT CP | (STATIC)= 0.142 | Z/C | U/IIP | CP(STATIC) |
| | • | -0.31541 | 1.0000 | 0.0217 |
| 2/0 | U/UP | -0.26876 | 0.9796 | 0.0196 |
| -0.02435 | 1.0000 | -0.22542 | 0.9995 | 0.0181 |
| -0.02338 | 0.9992 | -0.17790 | 0.9990 | 0.0177 |
| -0.02060 | 0.9940 | -0.12886 | 0.9991 | 0.0165 |
| -0.01800 | 0.9779 | -0.08738 | 0.9986 | 0.0204 |
| -0.01504 | 0.9386 | -0.06715 | 0.9986 | 0.0138 |
| -0.01225 | 0.8865 | -0.06007 | 0.9992 | 0.0130 |
| -0.00932 | 0.8305 | -0.05295 | 0.9987 | 0.0118 |
| -0.00668 | 0.7774 | -0.04099 | 0.9977 | 0.0134 |
| -0.00493 | 0.6777 | -0.03458 | 0.9964 | 0.0118 |
| -0.00396 | 0.6173 | -0.02572 | 0.9926 | 0.0094 |
| -0.00309 | 0.5377 | -0.01924 | 0.9859 | 0.0106 |
| -0.00229 | 0.4644 | -0.01112 | 0.9743 | 0.0099 |
| -0.00145 | 0.4208 | -0.00214 | 0.9560 | 0.0075 |
| -0.00031 | 0.3966 | 0.00605 | 0.9377 | 0.0083 |
| 0.00246 | 0.4065 | 0.01510 | 0.9170 | 0.0040 |
| 0.00547 | 0.4569 | 0.02335 | 0.9045 | 0.0051 |
| 0.00783 | 0.5077 | 0.03109 | 0.9006 | 0.0044 |
| 0.01076 | 0.5788 | 0.03937 | 0.9024 | 0.0048 |
| 0.01340 | 0.6362 | 0.04270 | 0.9044 | 0.0055 |
| 0.01630 | 0.7136 | 0.04768 | 0.9087 | 0.0044 |
| 0.01825 | 0.7718 | 0.05684 | 0.9195 | 0.0032 |
| 0.02133 | 0.8430 | 0.06518 | 0.9292 | 0.0016 |
| 0.02399 | 0.8940 | 0.07185 | 0.9371 | 0.0106 |
| 0.02623 | 0.9363 | 0.08105 | 0.9496 | 0.0024 |
| 0.02775 | 0.9555 | 0.08773 | 0.9619 | 0.0044 |
| 0.02935 | 0.9737 | 0.09860 | 0.9738 | 0.0056 |
| 0.03090 | 0.9863 | 0.10613 | 0.9756 | 0.0032 |
| 0.03245 | 0.9917 | 0.11365 | 0.9788 | 0.0032 |
| 0.03379 | 0.9945 | 0.12118 | 0.9816 | 0.0044 |
| 0.03518 | 0.9962 | 0.13036 | 0.9825 | 0.0032 |
| 0.03654 | 1.0000 | 0.14453 | 0.9857 | 0.0048 |
| | | 0.17934 | 0.9912 | 0.0021 |
| | | 0.26876 | 0.9974 | -0.0007 |
| | | 0.34468 | 1.0000 | -0.0070 |
| | | 0.40396 | 1.0000 | -0.0098 |
| | | | | |

Table 6.8 (continued)

CASE 9 PROBES C1

M= 0.730 ALPHA= 3.19 RE= 6500000.

| x/C= 0.152 | Y/C= 1. | 17 LOWER | X/C= 0.179 | Y/C= 1 | .04 UPPER | X/C= 0 34 | 9 Y/C= 1 | .15 UPPER |
|-------------|----------|------------|-------------|----------|-----------------------|------------|----------|--------------------|
| CONSTANT CP | | | CONSTANT CP | | | CONSTANT C | | |
| | | | | | | | | |
| 2/0 | 0.6042 | | 2/0 | U/UP | | 2/0 | U/UP | |
| 0.00014 | | | 0.00017 | 0.548 | | 0.00042 | | |
| 0.00067 | 0.7507 | | 0.00123 | 0.636 | | 0.00082 | | |
| 0.00083 | 0.8727 | | 0.00166 | 0.846 | | 0.00186 | | |
| 0.00103 | 0.9114 | | 0.00209 | 0.896 | | 0.00225 | | |
| 0.00128 | 0.9379 | | 0.00251 | 0.940 | | 0.00268 | | |
| 0.00163 | 0.9748 | | 0.00285 | 0.967 | | 0.00307 | | |
| 0.00198 | 0.9917 | | 0.00333 | 0.990 | | 0.00358 | | |
| 0.00224 | 0.9969 | | 0.00366 | 0.998 | | 0.00387 | | |
| 0.00261 | 0.9989 | | 0.00416 | 1.000 | | 0.00440 | | |
| 0.00301 | 0.9997 | | 0.00499 | 1.000 | 1 | 0.00466 | 0.984 | 4 |
| 0.00338 | 1.0000 | | 0.00527 | 1.000 | 0 | 0.00507 | | 2 |
| | | | | | | 0.00543 | | 4 |
| | | | | | | 0.00584 | | |
| | | | | | | 0.00647 | | |
| | | | | | | 0.00705 | 0.999 | |
| | | | | | | 0.00766 | 1.000 | |
| | | | | | | 0.00816 | 0.999 | |
| | | | | | | 0.00871 | 1.000 | 0 |
| X/C= 0.404 | Y/C= 1. | 20 UPPER | X/C= 0.498 | Y/C= 1.3 | 4 UPPER | X/C= 0.574 | Y/C= 1.3 | 1 UPPER |
| | | | 2/0 | U/UP | | 7/C | U/Up | |
| CONSTANT CP | | | 0.00040 | 0.6292 | CP(STATIC) -1.2813 | 0.00055 | 0.2927 | -0.7700 |
| 2/0 | U/UP | | 0.00068 | 0.6922 | -1.2808 | 0.00099 | 0.3740 | -0.7700 |
| 0.00023 | 0.5551 | | 0.00115 | 0.7366 | -1.2800 | 0.00150 | 0.4329 | -0.7700 |
| 0.00059 | 0.6672 | | 0.00178 | 0.7894 | -1,2788 | 0.00192 | 0.4825 | -0.7700 |
| 0.00084 | 0.7100 | | 0.00271 | 0.8266 | -1.2772 | 0.00260 | 0.5427 | -0.7700 |
| 0.00128 | 0.7486 | | 0.00311 | 0.8575 | -1.2765 | 0.00304 | 0.5968 | -0.7700 |
| 0.00168 | 0.7863 | | 0.00417 | 0.8946 | -1.2746 | 0.00350 | 0.6363 | -0.7700 |
| 0.00240 | 0.8389 | | 0.00459 | 0.9182 | -1.2739 | 0.00398 | 0.6804 | -0.7700 |
| 0.00308 | 0.8776 | | 0.00523 | 0.9402 | -1.2728 | 0.00452 | 0.7216 | -0.7700 |
| 0.00370 | 0.9101 | | 0.00607 | 0.9621 | -1.2713 | 0.00510 | 0.7632 | -0.7652 |
| 0.00467 | 0.9478 | | 0.00662 | 0.9780 | -1.2703 | 0.00541 | 0.7829 | -0.7623 |
| 0.00515 | 0.9720 | | 0.00731 | 0.9899 | -1.2691 | 0.00609 | 0.8256 | -0.7560 |
| 0.00585 | 0.9880 | | 0.00776 | 0.9952 | -1.2683 | 0.00640 | 0.8426 | -0.7531 |
| 0.00671 | 0.9963 | | 0.00857 | 0.9991 | -1.2669 | 0.00688 | 0.8720 | -0.7486 |
| 0.00753 | 0.9995 | | 0.00900 | 0.9995 | -1.2661 | 0.00734 | 0.8966 | -0.7444 |
| 0.00830 | 0.9992 | | 0.00953 | 0.9999 | -1.2652 | 0.00778 | 0.9143 | -0.7403 |
| 0.00874 | 1.0000 | | 0.01005 | 1.0000 | -1.2643 | 0.00923 | 0.9702 | -0.7330 -0.7268 |
| 0.00975 | 1.0000 | | | | | 0.00988 | 0.9862 | -0.7208 |
| | | | | | | 0.01065 | 0.9935 | -0.7136 |
| | | | | | | 0.01120 | 0.9979 | -0.7084 |
| | | | | | | 0.01170 | 0.9995 | -0.7038 |
| | | | | | | 0.01220 | 1.0000 | -0.6991 |
| | | | | | | | | |
| x/C= 0.650 | Y/C= 2.6 | 0 UPPER | X/C= 0.750 | A\C= 5 | .21 UPPER | X/C= 0.900 | Y/C= 2.4 | S UPPER |
| Z/C | U/UP | CP(STATIC) | CONSTANT CP | (STATIC) | -0.300 | 2/0 | U/UP | CP(STATIC) |
| 0.00057 | 0.3500 | -0.4947 | | | | 0.00065 | 0.3595 | -0.0309 |
| 0.00197 | 0.3958 | -0.4935 | Z/C | U/UP | | 0,00199 | 0.4081 | -0.0332 |
| 0.00361 | 0.4893 | -0.4921 | 0.00085 | 0.343 | | 0.00350 | 0.4503 | -0.0359 |
| 0.00550 | 0.6007 | -0.4906 | 0.00168 | 0.385 | | 0.00530 | 0.4910 | -0.0390 |
| 0.00712 | 0.7084 | -0.4893 | 0.00231 | 0.399 | | 0.00688 | 0.5252 | -0.0418 |
| 0.01051 | 0.9024 | -0.4865 | 0.00258 | 0.406 | | 0.00975 | 0.6031 | -0.0469 |
| 0.01185 | 0.9684 | -0.4853 | 0.00383 | 0.433 | | 0.01156 | 0.6542 | -0.0500 |
| 0.01316 | 0.9904 | -0.4843 | 0.00533 | 0.495 | | 0.01279 | 0.6854 | -0.0505 |
| 0.01493 | 0.9985 | -0.4828 | 0.00829 | 0.617 | | 0.01464 | 0.7262 | -0.0505 |
| 0.01645 | 0.9995 | -0.4816 | 0.00968 | 0.700 | | 0.01602 | 0.7652 | -0.0505 |
| 0.01815 | 0.9998 | -0.4801 | 0.01333 | 0.804 | | 0.01759 | 0.8190 | -0.0505 |
| 0.01952 | 0.9998 | -0.4790 | 0.01490 | 0.899 | | 0.01889 | 0.8494 | -0.0505 |
| 0.02040 | 1.0000 | -0.4782 | 0.01619 | 0.943 | | 0.01978 | 0.8919 | -0.0505 |
| | | | 0.01765 | 0.974 | | 0.02257 | 0.9352 | -0.0505 |
| | | | 0.01890 | 0.983 | | 0.02420 | 0.9649 | -0.0505 |
| | | | 0.01958 | 0.994 | | 0.02607 | 0.9710 | -0.0505 |
| | | | 0.02038 | 0,996 | | 0.02810 | 0.9755 | -0.0505 |
| | | | 0.02202 | 0.998 | | 0.02985 | 0.9977 | -0.0505 |
| | | | 0.02480 | 0.999 | | 0.03149 | 0.9997 | -0.0505 |
| | | | 0.02637 | 1.000 | | 0.03343 | 1.0000 | -0.0505 |
| | | | 0.02779 | 1.000 | 0 | 0.03512 | 1.0000 | -0.0505 |

A6-39

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C1 (concluded)

M= 0.730 ALPHA= 3.19 RE= 6500000.

| x/C= 1.000 | Y/C= 2.02 | WAKE | X/C= 1.025 | Y/C= 2.8 | 2 WAKE | X/C= 2.000 | Y/C= 1.5 | 0 WAKE |
|------------|-----------|------------|------------|----------|------------|------------|----------|------------|
| 2/0 | U/UP | CP(STATIC) | Z/C | U/UP | CP(STATIC) | Z/C | U/UP | CP(STATIC) |
| -0.02070 | 0.9978 | 0.1843 | -0.03052 | 1.0000 | 0.1518 | -0.38178 | 1.0000 | 0.0409 |
| -0.02062 | 0.9974 | 0.1842 | -0.02826 | 0.9994 | 0.1512 | -0.37465 | 0.9999 | 0.0440 |
| -0.01842 | 0.9926 | 0.1820 | -0.02530 | 0.9998 | 0.1505 | -0.35317 | 0.9998 | 0.0428 |
| -0.01565 | 0.9734 | 0.1792 | -0.02259 | 0.9981 | 0.1499 | -0.31800 | 0.9493 | 0.0362 |
| -0,01300 | 0.9336 | 0.1764 | -0.01952 | 0.9898 | 0.1491 | -0.26914 | 0.9994 | 0.0296 |
| -0.01002 | 0.8725 | 0.1734 | -0.01670 | 0.9680 | 0.1485 | -0.21062 | 0.9985 | 0.0294 |
| -0.00734 | 0.8169 | 0.1707 | -0.01382 | 0.9229 | 0.1478 | -0.13711 | 0.9988 | 0.0273 |
| -0.00440 | 0.7584 | 0.1670 | -0.01081 | 0.8688 | 0.1471 | -0.10512 | 0.9485 | 0.0265 |
| -0.00153 | 0.6566 | 0.1582 | -0.00923 | 0.8392 | 0.1467 | -0.05862 | 0.9980 | 0.0225 |
| 0.00022 | 0.2171 | 0.1538 | -0.00840 | 0.8262 | 0.1465 | -0.05148 | 0.9989 | 0.0233 |
| 0.00102 | 0.2514 | 0,1515 | -0.00763 | 0.8095 | 0.1463 | -0.04431 | 0.9988 | 0.0225 |
| 0.00174 | 0.2635 | 0.1494 | -0.00636 | 0.7858 | 0.1460 | -0.04031 | 0.9986 | 0.0273 |
| 0.00284 | 0.2995 | 0.1461 | -0.00416 | 0.7111 | 0.1455 | -0.0363u | 0.9974 | 0.0280 |
| 0.00496 | 0.3634 | 0.1399 | -0.00211 | 0.5395 | 0.1450 | -0.03147 | 0.9978 | 0.0263 |
| 0.00679 | 0.4031 | 0.1346 | -0.00048 | 0.4257 | 0.1446 | -0.02825 | 0.9957 | 0.0187 |
| 0.00825 | 0.4334 | 0.1303 | 0.00104 | 0.4058 | 0.1427 | -0.02340 | 0.9936 | 0.0228 |
| 0.00945 | 0.4658 | 0.1268 | 0.00220 | 0.4165 | 0.1404 | -0.02016 | 0.9914 | 0.0306 |
| 0.01060 | 0.4934 | 0.1235 | 0.00410 | 0.4532 | 0.1366 | -0.01529 | 0.9863 | 0.0245 |
| 0.01234 | 0.5237 | 0.1201 | 0.00646 | 0.4916 | 0.1319 | -0.01203 | 0.9816 | 0.0194 |
| 0.01464 | 0.5744 | 0.1188 | 0.00831 | 0.5278 | 0.1296 | -0.00551 | 0.9712 | 0.0210 |
| 0.01630 | 0.6109 | 0.1179 | 0.01018 | 0.5728 | 0.1276 | -0,00142 | 0.9642 | 0.0184 |
| 0.01810 | 0.6571 | 0.1170 | 0.01245 | 0.6158 | 0.1252 | 0.00103 | 0.9552 | 0.0196 |
| 0.02190 | 0.7436 | 0.1149 | 0.01454 | 0.6750 | 0.1230 | 0.00678 | 0.9411 | 0.0150 |
| 0.02353 | 0.7717 | 0.1140 | 0.01633 | 0.7076 | 0.1211 | 0.01088 | 0.9322 | 0.0152 |
| 0.02535 | 0.8142 | 0.1130 | 0.01836 | 0.7512 | 0.1189 | 0.01418 | 0.9238 | 0.0138 |
| 0.02834 | 0.8580 | 0.1114 | 0.01931 | 0.7784 | 0.1179 | 0.01995 | 0.9124 | 0.0132 |
| 0.02984 | 0.8805 | 0.1105 | 0.02025 | 0.7895 | 0.1169 | 0.02408 | 0.9075 | 0.0117 |
| 0.03113 | 0.8985 | 0.1098 | 0.02159 | 0.8216 | 0.1155 | 0.02739 | 0.9022 | 0.0170 |
| 0.032.2 | 0.9314 | 0.1090 | 0.02322 | 0.8514 | 0.1138 | 0.03070 | 0.9002 | 0.0097 |
| 0.03385 | 0.9470 | 0.1084 | 0.02469 | 0.8771 | 0.1122 | 0.03514 | 0.9001 | 0.0060 |
| 0.03770 | 0.9793 | 0.1063 | 0.02638 | 0.9119 | 0.1104 | 0.03929 | 0.9002 | 0.0149 |
| 0.03893 | 0.9884 | 0.1056 | 0.02757 | 0.9300 | 0.1091 | 0.04344 | 0.9024 | 0.0072 |
| 0.04047 | 0.9956 | 0.1047 | 0.03032 | 0.9712 | 0.1062 | 0.04760 | 0.9663 | 0.0114 |
| 0.04178 | 0.9970 | 0.1040 | 0.03182 | 0.9771 | 0.1046 | 0.05092 | 0.9099 | 0.0124 |
| 0.04284 | 0.9977 | 0.1034 | 0.03327 | 0.9872 | 0.1051 | 0.05675 | 0.9197 | 0.0118 |
| 0.04305 | 1.0001 | 0.1033 | 0.03499 | 0.9956 | 0.1013 | 0.06009 | 0.9252 | 0.0118 |
| 0.04361 | 1.0000 | 0.1030 | 0.03654 | 0.9981 | 0.0996 | 0.06426 | 0.9302 | 0.0110 |
| | | | 0.03793 | 0.9999 | 0.0981 | 0.06927 | 0.9430 | 0.0163 |
| | | | 0.03855 | 1.0000 | 0.0975 | 0.07678 | 0.9477 | 0.0192 |
| | | | | | | 0.08096 | 0.9564 | 0.0145 |
| | | | | | | 0.08932 | 0.9657 | 0.0164 |
| | | | | | | 0.09852 | 0.9722 | 0.0148 |
| | | | | | | 0.10772 | 0.9778 | 0.0203 |
| | | | | | | 0.11691 | 0.9794 | 0.0229 |
| | | | | | | 0.12276 | 0.9819 | 0.0100 |
| | | | | | | 0.13027 | 0.9828 | 0.0162 |
| | | | | | | 0.13861 | 0.9851 | 0.0142 |
| | | | | | | 0.14694 | 0.9858 | 0.0116 |
| | | | | | | 0.16271 | 0.9882 | 0.0090 |
| | | | | | | 0.18271 | 0.9882 | 0.0101 |
| | | | | | | | 0.9946 | 0.0101 |
| | | | | | | 0.22170 | 0.9948 | 0.0035 |
| | | | | | | 0.33727 | 0.9993 | -0.0010 |
| | | | | | | 0.40633 | 0.9996 | -0.0076 |
| | | | | | | 0.46421 | 1.0000 | -0.0066 |
| | | | | | | 0.40421 | 1.0000 | -0.000 |

A STATE OF THE BOTH OF THE STATE OF THE STAT

Table 6.8 (continued)

CASE 9 PRORFS C2 M= 0.730 ALPHA= 3.19 RE= 6500000.

| | | x/c= 0.498 | v/C= 1.34 | UPPER | X/C= 0 574 | Y/C= 1.31 | UPPER |
|--------------|------------------|--------------|--------------|-------|-------------|---------------|-------|
| | | CONSTANT CPC | | | CONSTANT CP | | |
| | | CONSTANT CP | 3141101-11 | | | (3141)(.)==() | .770 |
| | | 7/0 | U/UP | | 2/0 | U/Up | |
| | | 0.00040 | 0.6290 | | 0.00055 | 0.2926 | |
| | | 0.00068 | 0.6920 | | 0.00099 | 0.3738 | |
| | | 0.00115 | 0.7366 | | 0.00150 | 0.4327 | |
| | | 0.00178 | 0.7894 | | 0.00192 | 0.4823 | |
| | | 0.00271 | 0.8267 | | 0.00260 | 0.5425 | |
| | | 0.00311 | 0.8575 | | 0.00304 | 0.5966 | |
| | | 0.00417 | 0.8947 | | 0.00350 | 0.6361 | |
| | | 0.00459 | 0.9182 | | 0.00398 | 0.6801 | |
| | | 0.00523 | 0.9402 | | 0.00452 | 0.7214 | |
| | | 0.00607 | 0.9620 | | 0.00510 | 0.7641 | |
| | | 0.00662 | 0.9779 | | 0.00541 | 0.7843 | |
| | | 0.00731 | 0.9898 | | 0.00609 | 0.8277 | |
| | | 0.00776 | 0.9951 | | 0.00640 | 0.8448 | |
| | | 0.00857 | 0.9990 | | 0.00688 | 0.8742 | |
| | | 0.00897 | 0.9995 | | 0.00734 | 0.8987 | |
| | | 0.00953 | 0.9999 | | 0.00778 | 0.9163 | |
| | | 0.01005 | 1.0000 | | 0.00856 | 0.9492 | |
| | | 0.01005 | 1.0000 | | 0.00923 | 0.9710 | |
| | | | | | 0.00988 | 0.9866 | |
| | | | | | 0.01065 | 0.9937 | |
| | | | | | 0.01120 | 0.9979 | |
| | | | | | 0.01170 | 0.9995 | |
| | | | | | 0.01220 | 1.0000 | |
| | | | | | | | |
| x/c= 0.650 | Y/C= 2.60 UPPER | x/c= 0.750 | v/C= 2.21 | UPPER | x/c= 0.900 | v/C= 2.43 | UPPER |
| CONSTANT CPC | STATIC) == 0.495 | CONSTANT CP | (STATIC)=-0. | 300 | CONSTANT CP | STATIC) == 0. | 030 |
| 7/0 | U/IIp | 7/0 | 11/110 | | 7/0 | U/UP | |
| 0.00057 | 0.3504 | 0.00085 | 0.3432 | | 0.00065 | 0.3585 | |
| 0.00197 | 0.3973 | 0.00168 | 0.3850 | | 0.00199 | 0.4045 | |
| 0.00361 | 0.4913 | 0.00231 | 0.3991 | | 0.00350 | 0.4446 | |
| 0.00550 | 0.6027 | 0.00258 | 0.4062 | | 0.00530 | 0.4834 | |
| 0.00712 | 0.7102 | 0.00383 | 0.4339 | | 0.00688 | 0.5162 | |
| 0.01051 | 0.9033 | 0.00533 | 0.4958 | | 0.00975 | 0.5934 | |
| 0.01185 | 0.9687 | 0.00829 | 0.6174 | | 0.01156 | 0.6446 | |
| 0.01316 | 0.9906 | 0.00968 | 0.7008 | | 0.01279 | 0.6766 | |
| 0.01493 | 0.9986 | 0.01232 | 0.8044 | | 0.01464 | 0.7188 | |
| 0.01645 | 0.9995 | 0.01333 | 0.8553 | | 0.01602 | 0.7591 | |
| | 0.9998 | 0.01490 | 0.8995 | | 0.01750 | 0.8145 | |
| 0.01815 | 0.9999 | 0.01619 | 0.9434 | | 0.01889 | 0.8457 | |
| 0.02040 | 1.0000 | 0.01765 | 0.9745 | | 0.01978 | 0.8893 | |
| 0.02040 | | 0.01890 | 0.9836 | | 0.02075 | 0.9082 | |
| | | 0.01958 | 0.9944 | | 0.02257 | 0.9337 | |
| | | 0.01938 | 0.9966 | | 0.02420 | 0.9641 | |
| | | | 0.9983 | | 0.02607 | 0.9703 | |
| | | 0.02202 | 0.9991 | | 0.02810 | 0.9955 | |
| | | 0.02480 | 1.0002 | | 0.02985 | 0.9977 | |
| | | 0.02637 | | | 0.03140 | | |
| | | 0.02779 | 1.0000 | | 0.03343 | 1.0000 | |
| | | | | | 0.03512 | | |
| | | | | | 0.03512 | 1.0000 | |

BOUNDARY LAYER AND WAKE PROFILES

PROBES C2 (concluded) CASE 9 ME 0.730 ALPHAR 3.19 RES 6500000.

X/C= 1.000 Y/C= 2.02 WAKE X/C= 1.025 Y/C= 2.82 WAKE CONSTANT CP(STATIC) = 0.1347 CONSTANT CP(STATIC)= 0.1347 U/UP U/UP 0.9979 -0.02070 -0.03052 -0.02826 -0.02530 1.0000 -0.02062 0.9994 0.998 0.9982 -0.01842 0.9930 0.9749 0.9371 0.8788 -0.01965 -0.02259 -0.01300 -0.01952 0.9900 -0.01002 -0.01670 -0.01382 -0.01081 0.9685 0.9241 0.8709 -0.00734 0.8257 -0.00440 0.7691 -0.00153 0.6688 -0.00923 0.8417 -0.00840 -0.00763 -0.00636 0. AZA9 0.8125 0.7891 0.7156 0.00102 0.2876 0.2039 0.3204 0.3712 0.00174 0.00284 -0.00414 0.00496 0.5477 0.4371 0.4161 0.4238 -0.00211 -0.00048 0.00679 0.4032 0.4284 0.4577 0.4827 0.00104 0.00825 0.01060 0.00646 0.4556 0.4556 0.4892 0.5237 0.5678 0.6101 0.6694 0.7018 0.01234 0.5110 0.01464 0.00831 0.5629 0.6002 0.6475 0.7362 0.01018 0.01245 0.01454 0.01810 0.02190 0.02353 0.7650 0.01633 0.02535 0.8086 0.8536 0.01836 0.01931 0.02025 0.7457 0.7733 0.7844 0.02984 0.8768 0.03113 0.02159 0.8170 0.03269 0.9291 0.9452 0.9786 0.8473 0.8735 0.9092 0.02322 0.02469 0.02638 0.02757 0.03770 0.03891 0. 9AA1 0.9278 0.04047 0.04178 0.04284 0.9955 0.03032 0.9948 0.03182 0.9763 0.04305 1.0000 0.03499 0.04361 0.9980 0.03654 1.0000

0.03793 0.03855

1.0000

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 DROBES DI

M= 0.730 ALPHAR 3.19 RF= 6500000.

| X/c= 0.152 | Y/C= 1.17 LOWER | X/C= 0.152 | Y/C= 2.00 | LOWER | K/C= 0.152 | Y/C= 7.47 | - |
|-------------|-----------------|-------------|--------------|-------|-------------|---------------|----|
| ONSTANT CPC | STATIC) = 0.020 | CONSTANT CP | STATIC)= 0.0 | 020 | CONSTANT CP | STATIC) = 0.0 | 20 |
| 2/6 | U/UP | 2/0 | U/110 | | 2/0 | U/UP | |
| 0.00016 | 0.6097 | 0.00019 | 0.6035 | | 0.00013 | 0.6061 | |
| 0.00030 | n.7385 | 0.00020 | 0.6912 | | 0.00028 | 0.7273 | |
| 0.00044 | n.7836 | 0.00038 | 0.7341 | | 0.00043 | 1.7847 | |
| 0.00076 | n.8510 | 0.00054 | 0.7820 | | 0.00062 | 0.8292 | |
| 0.00095 | 0.8946 | 0.00066 | 0.8142 | | 0.00084 | 0.8707 | |
| 0.00136 | 0.9438 | 0.00083 | 0.8519 | | 0.00101 | 0.8287 | |
| 0.00161 | 0.9645 | 0.00099 | n. AR21 | | 0.00112 | 0.9186 | |
| 0.00180 | 0.9826 | 0.00128 | 4.9275 | | 0.00177 | 0.9840 | |
| 0.00199 | n. 9913 | 0.00156 | 0.9593 | | 0.00212 | 0.9958 | |
| 0.00215 | n.9953 | 0.00196 | 0.9841 | | 0.00256 | 0.9986 | |
| 0.00245 | 0.9978 | 0.00255 | 0.9947 | | 0.00281 | 0.9992 | |
| 0.00280 | 0.0003 | 0.00290 | 1.9963 | | 0.00300 | 1.0000 | |
| 0.00328 | 0.0007 | 0.00354 | 1.0005 | | | | |
| 0.00354 | 1.9991 | 0.00407 | 0.9992 | | | | |
| 0.00399 | 1.0000 | 0.00477 | 1.0000 | | | | |
| | | 0.00540 | 1.0002 | | | | |
| | | 0.00588 | 1.0000 | | | | |

| (/C= 0.179 | Y/C= 1.04 UPPER | X/C= 0.179 | Y/C= 1.88 UPPER | X/C= 0.179 | V/C= 2.29 (JPP) |
|------------|-----------------|-------------|----------------------|-------------|-----------------|
| ONSTANT CP | STATIC) =-1.090 | CONSTANT CP | STATIC) =- 1 . 090 . | CONSTANT CP | STATIC) =-1.090 |
| 2/6 | U/UP | 7/6 | U/UP | 2/0 | U/UP |
| 0.00015 | 0.5317 | 0.00023 | 0.5849 | 0.00017 | 0.5356 |
| 0.00030 | 0.6253 | 0.00051 | 0.6885 | 0.00053 | 0.6952 |
| 0.00053 | 0.6999 | 0.00089 | 1.7629 | 0.00111 | 0.7984 |
| 0.00071 | 0.7369 | 0.00147 | 0.8432 | 0.00141 | 0.8349 |
| 0.00096 | 0.7745 | 0.00181 | 0.8782 | 0.00158 | 0.8542 |
| 0.00123 | 0.8159 | 0.00245 | 0.9401 | 0.00190 | 0.8908 |
| 0.00145 | 0.8397 | 0.00307 | 0.9813 | 0.00234 | 0.9326 |
| 0.00188 | 0.8875 | 0.00372 | 1.9975 | 0.00273 | 1.9623 |
| 0.00222 | 0.9741 | 0.00432 | 1.9999 | 0.00320 | 0.9879 |
| 0.00266 | 0.9571 | 0.00487 | 0.9996 | 0.00366 | 1.9973 |
| 0.00310 | 0.9831 | 0.00523 | 1.9999 | 0.00412 | 1.0000 |
| 0.00355 | 2,0962 | 0.00578 | 1.0000 | 0.00457 | 1.0006 |
| 0.00397 | 0.9999 | | | 0.00512 | 1.0002 |
| 0.00443 | 1.0004 | | | 0.00561 | 1.0000 |
| 0.00495 | 0.9998 | | | 3.00 | |
| 0.00550 | 1.0000 | | | | |

| X/C= 0.319 | v/C= 1.15 | IPPER . X/C= 0.319 | Y/C# 1.98 | UPPER X | /c= 0.319 | Y/C= 2.40 | UPPER |
|-------------|-----------------|--------------------|--------------|---------|-----------|---------------|-------|
| CONSTANT CP | STATIC) =-1.160 | CONSTANT CPC | STATIC) =-1. | 160 00 | NSTANT CP | STATIC) ==1.1 | 160 |
| 2/1 | U/UP | 2/6 | U/UP | | 7/0 | U/UP | |
| 0.00012 | 0.5174 | 0.00025 | 0.5799 | | 0.00059 | 0.6684 | |
| 0.00038 | 1.6321 | 0.00055 | 0.6739 | | 0.00088 | 0.7171 | |
| 0.00061 | 0.6753 | 0.00095 | 0.7372 | | 0.00103 | 0.7363 | |
| 0.00090 | 0.7529 | 0.00156 | 0.8138 | | 0.00125 | 0.7816 | |
| 0.00124 | 0.7920 | 0.00224 | 0.8638 | | 0.00173 | 0.8238 | |
| 0.00166 | 0.8230 | 0.00282 | 0.9011 | | 0.00213 | 0.8558 | |
| 0.00213 | 0.8586 | 0.00346 | 1.0355 | | 0.00265 | 0.8901 | |
| 0.00252 | 0.8921 | 0.00409 | 0.9665 | | 0.00316 | 0.9200 | |
| 0.00292 | 0.9198 | 0.00442 | 1.9820 | | 0.00363 | 0.9467 | |
| 0.00345 | n.9463 | 0.00505 | 0.9916 | | 0.00411 | 0.9680 | |
| 0.00403 | 0.9687 | 0.00551 | 0.0973 | | 0.00449 | 0.9857 | |
| 0.00461 | 0.9873 | 0.00434 | 0.0004 | | 0.00523 | 1.9951 | |
| 0.00508 | 1.9951 | 0.00701 | 0.9996 | | 0.00560 | 0.0081 | |
| 0.00557 | 1.0984 | 0.00789 | 1.0002 | | 0.00625 | 0.0908 | |
| 0.00618 | 0.9998 | 0.00851 | 1.0000 | | 0.00473 | 1.0001 | |
| 0.00663 | 1.0000 | 0.00 | | | 0.00735 | 1.0000 | |
| 0.00732 | 1.0000 | | | | 0.00733 | 1.0000 | |

Table 6.8 (continued)

CASF 9 PROBFS D1 (continued)

M= 0.730 ALPHA= 3.19 RF= 6500000.

| X/C= 0.404 | v/C= 1.2 | 0 UPPER | X/c= 0.404 | Y/C= 2.0 | 3 11PPER | x/c= 0.404 | V/C= 2 4 | 5 UPPER |
|-------------|-----------|--------------------|-------------|----------|--------------------|--------------|-----------|--------------------|
| CONSTANT CP | | | CONSTANT CP | | | CONSTANT CPC | | |
| • | 11/115 | | 2/6 | 11/116 | | | | |
| 2/0 | 0.5105 | | 0.00021 | 0.6191 | | 7/6 | U/UP | |
| 0.00019 | 0.5799 | | 0.00052 | 0.6877 | | 0.00018 | 1.5257 | |
| 0.00051 | 1.6665 | | 0.00110 | 0.7432 | | 0.00086 | 0.7167 | |
| 0.00071 | 0.6900 | | 0.00143 | 0.7911 | | 0.00277 | A. 8403 | |
| 0.00112 | 0.7411 | | 0.00232 | 0.8402 | | 0.00308 | 0.8771 | |
| 0.00148 | 0.7706 | | 0.00342 | n. 8975 | | 0.00346 | 0.8944 | |
| 0.00200 | 0.8000 | | 0.00396 | 0.9240 | | 0.00387 | r. 9249 | |
| 0.00228 | 0.8331 | | 0.00507 | 0.9735 | | 0.00479 | 1.0501 | |
| 0.00273 | 1.8607 | | 0.00610 | 1.9945 | | 0.005.58 | 1.9311 | |
| 0.00323 | 0.8891 | | 0.00723 | 1.9996 | | 0.00644 | 1.9955 | |
| 0.00358 | 0.9048 | | 0.00840 | 1.0004 | | 0.00718 | 1.9993 | |
| 0.00422 | 0.9389 | | 0.00913 | 0.9996 | | 0.00800 | 0.000 | |
| 0.00488 | 0.9641 | | 0.00986 | 1.0000 | | 0.00875 | 1.0000 | |
| 0.00558 | 0.9847 | | | | | | | |
| 0.00641 | 0.9952 | | | | | | | |
| 0.00729 | 1.0000 | | | | | | | |
| 0.00793 | 1.0002 | | | | | | | |
| 0.00971 | 1.0000 | | | | | | | |
| X/C= 0.498 | Y/C= 1.3 | S4 UPPER | X/c= 0.498 | v/C= 2.1 | 7 HPPER | X/C= 0.498 | Y/C= 2.59 | UPPER |
| | | | | | | | | |
| 2/0 | 0/09 | CR(STATIC) | 7/0 | U/UP | CP(STATIC) | 2/0 | U/UP | CP(STATIC) |
| 0.00016 | 0.5294 | -1.2817 | 0.00025 | 1.5867 | -1.2816 | 0.00029 | 0.5904 | -1.2815 |
| 0.00032 | 0.6060 | -1.2814 -1.2812 | 0.00070 | 0.6917 | -1.2808 | 0.00038 | 0.6332 | -1,2813 |
| 0.00095 | 1.4979 | -1,2803 | 0.00121 | 0.7386 | -1,2799 -1,2787 | 0.00050 | 0.6533 | -1.2811 |
| 0.00119 | 1.7257 | -1 2799 | 0.00187 | 0.7832 | -1.2771 | 0.00115 | 0.7313 | -1,2800 -1,2788 |
| 0.00167 | 0.7578 | -1,2791 | 0.00277 | 0.8544 | -1.2764 | 0.00183 | 0.7778 | -1 2773 |
| 0.00198 | 1.7804 | -1.2785 | 0.00415 | 0.9001 | -1 .2747 | 0.00265 | 0.8510 | -1 .2766 |
| 0.00246 | 0.8042 | -1,2777 | 0.00505 | 0.9339 | -1 .2731 | 0.00341 | 0.8629 | -1 2760 |
| 0.00305 | 0.8321 | -1.2766 | 0.00596 | 0.9657 | -1 2715 | 0.00389 | 0.8880 | -1 2751 |
| 0.00338 | 0.8468 | -1,2760 | 0.00702 | 0.9889 | -1 2696 | 0.00468 | 0.9151 | -1.2737 |
| 0.00425 | 1.8812 | -1.2745 | 0.00770 | 1.9941 | -1 2684 | 0.00522 | 0.9386 | -1.2728 |
| 0.00477 | 1.9059 | -1.2736 | 0.00835 | 1.9994 | -1.2673 | 0.00592 | 0.9629 | -1.2716 |
| 0.00553 | 0.9297 | -1.2722 | 0.00904 | 1.0003 | -1.2660 | 0.00663 | 0.9808 | -1,2703 |
| 0.00626 | 1.9548 | -1.2709 | 0.01026 | 1.0000 | -1 2639 | 0.00744 | 0.9974 | -1,2689 |
| 0.00702 | 0.9735 | -1.2696 | | | | 0.00797 | 0.9973 | -1,2679 |
| 0.00748 | 0.9843 | -1.2684 | | | | 0.00879 | A. 9980 | -1,2665 |
| 0.00833 | 0.9950 | -1.2673 | | | | 0.00956 | 1.0008 | -1.2651 |
| 0.00916 | 1.9984 | -1 . 2658 | | | | 0.00004 | 1.0000 | -1,2645 |
| 0.01080 | 1.0000 | -1.2642 -1.2629 | | | | | | |
| 0.01144 | 1.0000 | -1.2618 | | | | | | |
| | | | | | | | | |
| x/C= 0.574 | Y/C= 1.31 | | x/c= 0.574 | Y/C= 2.1 | | X/C= 0.574 | Y/C= 2.5 | |
| Z/C | U/Up | CP(STATIC) | 7/0 | U/UP | CP(STATIC) | 7/0 | 90/06 | CP(STATIC) |
| 0.00023 | 0.2836 | -0.7700 | 0.00026 | 0.3172 | -0.7700 | 0.00044 | 0.3383 | -0.7700 |
| 0.00053 | 0.2735 | -0.7700 | 0.00047 | 0.3342 | -0.7700 | 0.00095 | 0.3571 | -0.7700 |
| 0,00086 | 0.3046 | -0.7700 | 0.00076 | 0.3417 | -0.7700 -0.7700 | 0.00199 | 0.4703 | -0.7700 -0.7700 |
| 0.00109 | 0.3777 | -0.7700 | 0.00149 | 0.4355 | -0.7700 | 0.00227 | 0.4846 | -0.7700 |
| 0.00200 | 0.4205 | -0.7700 | 0.00215 | 0.5036 | -0.7700 | 0.00258 | 0.5293 | -0.7700 |
| 0.00255 | 0.4550 | -0.7700 | 0.00252 | 0.5290 | -0.7700 | 0.00317 | 0.5630 | -0.7700 |
| 0.00305 | 0.5174 | -0.7700 | 0.00335 | 0.6058 | -0.7700 | 0.00369 | 0.6045 | -0.7700 |
| 0.00360 | 0.5676 | -0.7700 | 0.00405 | 0.6672 | -0.7700 | 0.00416 | 0.6541 | -0.7700 |
| 0.00410 | 0.6210 | -0.7700 | 0.00468 | 0.7158 | -0.7691 | 0.00488 | 0.6979 | -0.7672 |
| 0.00470 | 0.6691 | -0.7689 | 0.00549 | 0.7766 | -0.7616 | 0.00525 | 0.7379 | -0.7639 |
| 0.00527 | 0.7104 | -0.7636 | 0.00609 | 0.8012 | -0.7560 | 0.00577 | 0.7771 | -0.7589 |
| 0.00596 | 0.7572 | -0.7572 | 0.00656 | 0.8338 | -0.7516 | 0.00649 | 0.8102 | -0.7523 |
| 0.00655 | 0.8016 | -0.7517 | 0.00712 | 0.8596 | -0.7464 | 0.00715 | 0.8537 | -0.7461 |
| 0.00707 | 0.8401 | -0.7469 | 0.00804 | 0.9094 | -0.7378 | 0.00750 | 0.8789 | -0.7429 |
| 0.00783 | 0.8807 | -0.7398 | 0.00885 | 0.9448 | -0.7303 | 0.00884 | 0.9137 | -0.7352 |
| 0.00835 | 0.9194 | -0.7350 -0.7282 | 0.00985 | 0.9816 | -0.7210 | 0.00970 | 0.9707 | -0.7304 -0.7224 |
| 0.00908 | 0.9525 | -0.7205 | 0.01065 | 0.9972 | -0.7135 -0.7065 | 0.01051 | 0.9897 | -0.7149 |
| 0.01075 | 0.9854 | -0.7127 | 0.01224 | 0.9997 | -0.6988 | 0.01147 | 0.9974 | -0.7059 |
| 0.01186 | 0.9954 | -0.7023 | 0.01310 | 1.0000 | -0.6908 | 0.01237 | 0.9996 | -0.6976 |
| 0.01279 | 0.9986 | -0.6937 | 0.0.0 | | 0.0740 | 0.01326 | 1,0000 | -0.6893 |
| 0.01359 | 1.0000 | -0.6862 | | | | | | |
| 0.01453 | 0.9998 | -0.4775 | | | | | | |
| 0.01542 | 1.0000 | -0.6692 | | | | | | |
| | | | | | | | i.e | |

Table 6.8 (continued)

CASF 9 PROBF 01 (concluded)

M= 0.730 ALPHA= 3.19 RF= 6500000.

| x/c= 0.650 | v/C= 2.60 | UPPER | x/c= 0.750 | V/C= 2.21 | IIPPER | x/c= 0.900 | V/C= 2.43 | HPPER |
|------------|-----------|----------|-------------|--------------|--------|------------|-----------|------------|
| 2/0 | U/11P (| COLTATE) | CONSTANT CP | STATICI =- 0 | 300 | 7/0 | U/UP | CP(STATIC) |
| 0.00057 | 0.3655 | -0.4947 | | | | 0.00088 | 0.3730 | -0 0313 |
| 0:00127 | 0.3880 | -0.4941 | 2/0 | U/UP | | 0.00144 | 1.3926 | -0.0323 |
| 0.00584 | 0.5500 | -0.4903 | 0.00057 | 0.3211 | | 0.00381 | 0.4367 | -0 0364 |
| 0.00797 | 1.6759 | -0 4885 | 0.00092 | 0.3305 | | 0.00580 | 1.4850 | -0.0399 |
| 0.00968 | 0.7611 | -0.4871 | 0.00168 | 0.3508 | | 0.00779 | 0.5381 | -0.0434 |
| 0.01178 | n. 8700 | -0 4854 | 0.00265 | ^.3763 | | 0.00924 | n. 5826 | -0.0460 |
| 0.01389 | 1.9496 | -0.4837 | 0.00321 | 0.4002 | | 0.01177 | 1.6405 | -0.0504 |
| 0.01655 | 0.9906 | -0 4815 | 0.00383 | 0.4174 | | 0.01387 | 0.6906 | -0 0505 |
| 0.01858 | 1.0011 | -0.4798 | 0.00437 | 0.4295 | | 0.01640 | 0.7550 | -0.0505 |
| 0.02067 | 1.9994 | -0.4780 | 0.00655 | 0.4895 | | 0.01840 | 0.8113 | -0 0505 |
| 0.02237 | 1.0000 | -0 4762 | 0.00832 | 1.5824 | | 0.02067 | 1.8408 | -0 0505 |
| | | | 0.01015 | 0.6752 | | 0.02288 | 0.8975 | -0 0505 |
| | | | 0.01155 | 0.7415 | | 0.02490 | 1.9173 | -0 0505 |
| | | | 0.01270 | 1.8305 | | 0.02732 | 0.9600 | -0.0505 |
| | | | 0.01450 | 1.9024 | | 0.02977 | 0.9837 | -0 0505 |
| | | | 0.01688 | 0.9637 | | 0.03141 | 1.9939 | -0.0505 |
| | | | 0.01864 | 0.9903 | | 0.03320 | 0.9958 | -0 0505 |
| | | | 0.02055 | 0.9916 | | 0.03512 | 1.9985 | -0.0505 |
| | | | 0.02749 | 0.9994 | | 0.03706 | 1.9999 | -0.0505 |
| | | | 0.02603 | 0.9903 | | 0.03881 | 1.0000 | -0.0515 |
| | | | 0.02792 | 1.0000 | | | | |

| x/c= 1.000 | V/C= 2.02 | WAKE | x/c= 1.025 | Y/C= 2.8 | 2 WAKE |
|------------|-----------|------------|------------|----------|------------|
| 7/0 | U/UP | CP(STATIC) | 7/6 | U/UP | CP(STATIC) |
| -0.01994 | 0.9799 | 0 1835 | -0.03052 | 1.0000 | 0.1518 |
| -0.01774 | 0.9657 | 0.1813 | -0.02817 | 0.0988 | 0.1512 |
| -0.01533 | 0.9463 | 0 1788 | -0.02581 | 1.9971 | 0.1507 |
| -0.01300 | 0.9155 | 0.1764 | -0.02344 | 0.9976 | 0.1501 |
| -0.01056 | 0.8880 | 0 1740 | -0.02092 | 0.9926 | 0.1495 |
| -0.00819 | 0.8399 | 0 1715 | -0.01845 | 0.9785 | 0.1489 |
| -0.00591 | 1.8122 | 0.1692 | -0.01619 | 1,9526 | 0 1483 |
| -0.00415 | 0.7732 | 0 1662 | -0.01441 | 1,9232 | 0 1479 |
| -0.00250 | 0.7437 | 0.1612 | -0.01273 | 0.8928 | 0 1475 |
| -0.00137 | 0.6495 | 0.1577 | -0.01148 | ^.8723 | 0 1472 |
| -0.00089 | 0.3428 | 0.1563 | -0.01098 | 1.8622 | 0.1471 |
| 0.00102 | 0.1140 | 0.1515 | -0.00932 | 0.8339 | 0 1467 |
| 0.00276 | 0.1833 | 0 1464 | -0.00915 | 1.8272 | 0 1467 |
| 0.00425 | 0.2207 | 0.1420 | -0.00738 | 0.7969 | 0 1467 |
| 0.00535 | 1.2474 | 0 138A | -0.00577 | 4.7577 | 0.1458 |
| 0.00736 | 1.2816 | 0.1329 | -0.00458 | 0.7090 | 0 1456 |
| 0.00929 | 0.3217 | 0.1273 | -0.00244 | 1.5250 | 0.1450 |
| 0.01134 | 0.3796 | 0.1213 | -0.00010 | 0.4090 | 0 1446 |
| 0.01342 | 0.4343 | 0 1195 | 0.00203 | 0.4081 | 0 1407 |
| 0.01543 | 0.4893 | 0 1184 | 0.00418 | 1.4467 | 0.1365 |
| 0.01714 | 1.5157 | 0 1175 | 0.00438 | 1.4937 | 0 1321 |
| 0.01935 | 1.5758 | 0.1163 | 0.00815 | 0.5274 | 0.1298 |
| 0.02190 | 1.6374 | 0 1149 | 0.01068 | 1.5869 | 0 1271 |
| 0.02393 | 0.7101 | 0.1138 | 0.01354 | 0.6550 | 0 1241 |
| 0.02796 | n.8238 | 0 1116 | 0.01576 | 1.7118 | 9 1217 |
| 0.02984 | 0.8501 | 0 1105 | 0.01803 | 0.7647 | 0 1193 |
| 0.03223 | 0.8969 | 0 1092 | 0.02049 | 1.8224 | 0.1167 |
| 0.03400 | 1.9319 | 0 1083 | 0.02245 | n.8582 | 0 1146 |
| 0.03583 | 0.9531 | 0 1073 | 0.02508 | 0.9045 | 0 1118 |
| 0.03718 | 1.9707 | 0 1065 | 0.02705 | 1.0352 | 0.1097 |
| 0.03871 | 0.9777 | 0 1057 | 0.02012 | 1.9614 | 0.1076 |
| 0.04040 | 1.9870 | 0 1048 | 0.03054 | 1.9741 | 0 1060 |
| 0.04235 | 1.9988 | 0.1037 | 0.03266 | 1.9842 | 0 1037 |
| 0.04277 | 1.9999 | 0 1035 | 0.03463 | 1.9924 | 0.1016 |
| 0.04375 | 1.0903 | 0 1029 | 0.03661 | 1.0012 | 0 0995 |
| 0.04547 | 1.0006 | 0.1020 | 0.03724 | 1.0001 | 0 0989 |
| 0.04588 | 1.9996 | 0 1018 | 0.03786 | 1.9299 | 0 0982 |
| 0.04649 | 1.0000 | 0 1014 | 0.03828 | 1.0000 | 0.0978 |

Table 6.8 (continued)

CASE 10 PROBES C1

M= 0.750 ALPHA= 3.19 RE= 6200000.

| /C= 0.152 | Y/C= 1.17 LOW | YER X/C= 0.179 | | UPPER | X/C= 0.319 | 170- 1.1 | 5 UPPE |
|---|--|---|--|--|---|--|--|
| NSTANT CP | STATIC) =-0.010 | CONSTANT CPC | STATIC)=-0 | .995 | CONSTANT CP | (STATIC)=- | 1.095 |
| 7/0 | U/UP | 2/0 | U/UP | | 7/C | U/UP | |
| 0.00032 | 0.6893 | 0.00028 | 0.5745 | | 0.00031 | 0.6468 | |
| 0.00079 | 0.8522 | | | | 0.00042 | | |
| 0.00113 | 0.9127 | 0.00053 | 0.6595 | | 0.00080 | 0.6816 | |
| 0.00138 | 0.9403 | 0.00059 | 0.6907 | | | 0.7345 | |
| 0.00156 | 0.9583 | 0,00092 | 0.7500 | | 0.00128 | 0.7830 | |
| 0.00169 | 0.9712 | 0.00121 | 0.7941 | | 0.00150 | 0.8056 | |
| 0.00193 | 0.9861 | 0.00135 | 0.8200 | | 0.00186 | 0.8358 | |
| 0.00206 | 0.9909 | 0.00167 | 0.8552 | | 0.00222 | 0.8631 | |
| 0.00235 | 0.9969 | 0.00208 | 0.8897 | | 0.00255 | 0.8833 | |
| 0.00248 | 0.9983 | 0.00226 | 0.9132 | | 0.00284 | 0.8997 | |
| 0.00279 | 0.9990 | 0.00266 | 0.9451 | | 0.00306 | 0.9144 | |
| | 0.0000 | 0.00298 | 0.9693 | | 0.00341 | 0.9335 | |
| 0.00318 | | 0.00335 | 0.9849 | | 0.00369 | 0.9475 | |
| 0.00349 | 1.0000 | 0.00357 | 0.9940 | | 0.00407 | 0.9655 | |
| | | 0.00382 | 0.9977 | | 0.00443 | 0.9778 | |
| | | 0.00414 | 0.9998 | | 0.00481 | 0.9877 | |
| | | 0.00448 | 0.9999 | | 0.00509 | 0.9930 | |
| | | 0.00481 | 1.0000 | | 0.00544 | 0.9968 | |
| | | | | | 0.00585 | 0.9988 | |
| | | | | | 0.00627 | 0.9996 | |
| | | | | | 0.00668 | 0.9998 | |
| | | | | | 0.00702 | 1.0000 | |
| | | | | | 0.00738 | 1.0000 | |
| | | | | | | | |
| | | | | | | | |
| /c= 0.404 | Y/C= 1.20 HPP | PER X/C= 0.498 | Y/C= 1.34 | IJPPER | x/C= a.574 | y/C= 1.31 | JapE _l |
| | Y/C= 1.20 HPP STATIC)=-1.152 | Z/C | U/UP | CP(STATIC) | 7/0 | U/Up | CP(STATE |
| ISTANT CPC | STATIC) =-1.152 | Z/C 0.00036 | U/UP 0.5879 | CP(STATIC) -1.2347 | 7/C 0.00034 | U/UP 0.1143 | CP(STAT |
| STANT CPC | U/UP | Z/C 0.00036 0.00095 | U/UP 0.5879 0.7044 | CP(STATIC) -1.2347 -1.2342 | 7/C 0.00034 0.00065 | U/UP 0.1143 0.3129 | -0.752 |
| Z/C 0.00015 | U/UP 0.5293 | Z/C 0.00036 0.00095 0.00143 | U/UP 0.5879 0.7044 0.7455 | CP(STATIC) -1.2347 -1.2342 -1.2338 | 7/C 0.00034 0.00065 0.00106 | U/UP 0.1143 0.3129 0.4296 | -0.754 -0.754 -0.756 |
| ISTANT CPC | U/UP 0.5293 0.6854 | Z/C 0.00036 0.00095 0.00143 0.00155 | U/UP 0.5879 0.7044 0.7455 0.7572 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 | 7/C 0.00034 0.00065 0.00106 0.00138 | U/UP 0.1143 0.3129 0.4296 0.4893 | CP(STAT -0.752 -0.754 -0.756 -0.758 |
| Z/C 0.00015 | U/UP 0.5293 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 | 7/C 0-00034 0-00065 0-00106 0-00138 0-00155 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.759 |
| Z/C 0.00015 0.00068 | U/UP 0.5293 0.6854 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 | U/UP 0.5879 0.7044 0.7455 9.7572 0.7949 0.8184 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 | 7/C 0.0034 0.0065 0.00106 0.00138 0.00155 0.00196 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.759 -0.762 |
| Z/C 0.00015 0.00068 0.00120 | U/UP 0.5293 0.6854 0.7557 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2325 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.759 -0.762 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 | U/UP 0.5293 0.6854 0.7557 0.7944 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 | 7/C 0.00034 0.00065 0.00138 0.00155 0.00196 0.00233 0.00265 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 0.6264 0.6529 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.764 -0.766 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 | U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 | 2/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 0.8598 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2325 -1.2321 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 0.6529 0.6529 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.762 -0.764 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 0.00248 0.00293 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8766 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 0.8598 0.8850 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2325 -1.2321 -1.2316 -1.2312 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 0.6264 0.6529 0.6924 0.7198 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.764 -0.7664 -0.769 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 0.00248 0.00293 0.00293 | U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8467 0.8706 0.8851 | 2/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 0.8598 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.3325 -1.2321 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00390 | U/UP 0-1143 0-3129 0-4296 0-4893 0-5771 0-6529 0-6529 0-7198 0-7419 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.762 -0.764 -0.769 -0.772 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 0.00248 0.00293 0.00374 | U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00342 0.00397 | U/UP 0.5879 0.7044 0.7455 9.7572 0.7949 0.8184 0.8341 0.8850 0.9018 0.9041 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2321 -1.2316 -1.2312 -1.2307 -1.2307 | 7/C 0.00034 0.00065 0.00138 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00352 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7419 0.7419 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.769 -0.764 -0.769 -0.772 -0.774 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00293 0.00293 0.00376 0.00374 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8766 0.8851 0.9127 0.9373 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00397 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 0.8598 0.89018 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.3328 -1.2325 -1.2321 -1.2316 -1.2312 -1.2307 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00390 | U/UP 0-1143 0-3129 0-4296 0-4893 0-5771 0-6529 0-6529 0-7198 0-7419 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.766 -0.764 -0.769 -0.772 -0.774 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 0.00248 0.00248 0.00293 0.00316 0.00374 0.00426 0.00467 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00348 0.00507 | U/UP 0.5879 0.7044 0.7455 9.7572 0.7949 0.8184 0.8341 0.8850 0.9018 0.9041 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2321 -1.2316 -1.2312 -1.2307 -1.2307 | 7/C 0.00034 0.00065 0.00138 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00352 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7419 0.7419 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.762 -0.764 -0.769 -0.772 -0.772 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 0.00248 0.00293 0.00374 0.00374 0.00467 0.00467 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 | 2/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00348 0.00507 0.00558 | U/UP 0.5879 0.7044 0.7455 0.7572 0.8184 0.8341 0.8598 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2325 -1.2316 -1.2316 -1.2312 -1.2307 -1.2307 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00265 0.00312 0.00352 0.00352 0.00427 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.6924 0.7198 0.7732 0.7732 | CP(STAT -0.752 -0.754 -0.758 -0.758 -0.762 -0.766 -0.766 -0.766 -0.7764 -0.7764 -0.7774 -0.7774 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00248 0.00248 0.00243 0.00374 0.00374 0.00467 0.00467 0.00530 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9892 | Z/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00558 0.00618 0.00658 | U/UP 0.5879 0.7044 0.7455 9.7572 0.7949 0.8184 0.8598 0.9018 0.9018 0.9018 0.9018 0.9594 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2328 -1.2326 -1.2316 -1.2316 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 -1.2310 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00352 0.00457 0.00494 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.6924 0.7198 0.7419 0.7732 0.7860 0.8194 | CP(STAT -0.752 -0.752 -0.756 -0.756 -0.762 -0.762 -0.769 -0.776 -0.776 -0.776 -0.778 -0.781 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00374 0.00426 0.00467 0.00589 0.00589 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9892 0.9953 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00295 0.00342 0.00397 0.00448 0.00507 0.00558 | U/UP 0.5879 0.7044 0.7455 0.7572 0.7949 0.8184 0.8341 0.8598 0.9018 0.9241 0.9241 0.9594 | CP(STATIC) -1.2347 -1.2347 -1.2358 -1.2357 -1.2351 -1.2328 -1.2325 -1.2316 -1.2316 -1.2312 -1.2307 -1.2307 -1.2397 -1.2297 | 7/C 0.00034 0.00065 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00392 0.00457 0.00457 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6529 0.6924 0.7198 0.7419 0.7732 0.7860 0.8194 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.762 -0.764 -0.769 -0.772 -0.772 -0.776 -0.778 -0.783 -0.783 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00293 0.00374 0.00374 0.00467 0.00467 0.00589 0.00589 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9892 0.9953 0.9983 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00342 0.00397 0.00448 0.00507 0.00558 0.00618 0.00658 0.00692 | U/UP 0.5879 0.7044 0.7455 9.7572 0.7949 0.8184 0.8341 0.8598 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2328 -1.2326 -1.2316 -1.2312 -1.2307 -1.2307 -1.2297 -1.2297 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00263 0.00265 0.00312 0.00352 0.00352 0.00352 0.00457 0.00457 0.00494 0.00535 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6529 0.6924 0.7198 0.7419 0.7732 0.7860 0.8194 0.8694 | CP(STAT -0.752 -0.754 -0.758 -0.758 -0.762 -0.764 -0.764 -0.776 -0.776 -0.776 -0.776 -0.776 -0.776 -0.776 -0.776 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00196 0.00248 0.00293 0.00374 0.00374 0.00467 0.00467 0.00589 0.00589 0.00706 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9892 0.9953 0.9983 | Z/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00558 0.00618 0.00658 0.00658 0.00658 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9014 0.9014 0.9594 0.9787 0.9878 0.9970 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2337 -1.2321 -1.2326 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2291 -1.2291 -1.2287 -1.2287 -1.2287 -1.2287 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00390 0.00427 0.00457 0.00535 0.00577 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.7860 0.8194 0.8694 0.8694 0.8885 | CP(STAT -0.752 -0.752 -0.756 -0.756 -0.762 -0.762 -0.769 -0.772 -0.774 -0.778 -0.783 -0.783 -0.783 -0.784 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00248 0.00248 0.00248 0.00376 0.00376 0.00376 0.00589 0.00589 0.00753 0.00753 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9892 0.9953 0.9993 | Z/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00295 0.00397 0.00448 0.00507 0.00558 0.00618 0.00658 0.00692 0.00742 | U/UP 0.5879 0.7044 0.7455 9.7572 0.8184 0.8341 0.8598 0.9041 0.9594 0.9794 0.9798 0.9878 0.9979 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2325 -1.2316 -1.2316 -1.2316 -1.2312 -1.2307 -1.2297 -1.2297 -1.2297 -1.2297 -1.2297 -1.2297 -1.2297 -1.2287 -1.2278 | 7/C 0.00034 0.00065 0.00138 0.00138 0.00155 0.00196 0.00233 0.00352 0.00352 0.00352 0.00352 0.00457 0.00457 0.00457 0.00663 0.00577 0.00663 0.00663 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7419 0.7732 0.7860 0.8194 0.8480 0.8885 0.9122 0.9224 | CP(STAT -0.752 -0.752 -0.756 -0.756 -0.762 -0.762 -0.769 -0.772 -0.774 -0.778 -0.783 -0.783 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.784 -0.794 -0.793 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | 2/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00558 0.00618 0.00658 0.00692 0.00742 | U/UP 0.5879 0.7044 0.7455 0.7572 0.8184 0.8341 0.8598 0.9018 0.9018 0.9594 0.9594 0.9787 0.9788 0.9932 0.9978 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2325 -1.2316 -1.2316 -1.2316 -1.2307 -1.2307 -1.2297 -1.2297 -1.2297 -1.2287 -1.2287 -1.2274 -1.2274 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00263 0.00312 0.00352 0.00352 0.00352 0.00457 0.00457 0.00457 0.00535 0.00577 0.00616 0.00616 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5205 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.7860 0.8194 0.8694 0.8694 0.8694 0.8694 0.8694 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.762 -0.764 -0.7762 -0.7762 -0.7762 -0.7780 -0.780 -0.780 -0.780 -0.780 -0.780 -0.780 -0.780 -0.780 -0.7915 -0.7915 |
| Z/C 0.00015 0.00068 0.00168 0.00176 0.00176 0.00248 0.00293 0.00316 0.00374 0.00467 0.00530 0.00530 0.00530 0.00530 0.00763 | V/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9892 0.9953 0.9993 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00352 0.00427 0.00457 0.00457 0.00535 0.00577 0.00616 0.00616 0.00743 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.8194 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.8694 0.9413 0.9584 | CP(STAT -0.752 -0.754 -0.758 -0.758 -0.762 -0.764 -0.764 -0.776 -0.774 -0.776 -0.778 -0.783 -0.788 -0.788 -0.788 -0.793 -0.793 -0.793 -0.793 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | 2/C 0.0036 0.0095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00558 0.00618 0.00658 0.00692 0.00742 | U/UP 0.5879 0.7044 0.7455 0.7572 0.8184 0.8341 0.8598 0.9018 0.9018 0.9594 0.9594 0.9787 0.9788 0.9932 0.9978 | CP(STATIC) -1.2347 -1.2342 -1.2338 -1.2337 -1.2331 -1.2325 -1.2316 -1.2316 -1.2316 -1.2307 -1.2307 -1.2297 -1.2297 -1.2297 -1.2287 -1.2287 -1.2274 -1.2274 | 7/C 0.00034 0.00065 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00352 0.00457 0.00457 0.00457 0.00535 0.00577 0.00663 0.00743 0.00790 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7198 0.7732 0.7860 0.8190 0.8190 0.8892 0.9224 0.9224 0.9238 | CP(STAT -0.752 -0.752 -0.756 -0.756 -0.762 -0.762 -0.769 -0.772 -0.774 -0.778 -0.783 -0.783 -0.783 -0.783 -0.783 -0.791 -0.793 -0.783 - |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.00034 0.00065 0.00106 0.00135 0.00196 0.00263 0.00263 0.00312 0.00352 0.00352 0.00352 0.00422 0.00457 0.00457 0.00535 0.00535 0.00577 0.00616 0.00616 0.00701 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.7860 0.8194 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 | CP(STAT -0.752 -0.754 -0.756 -0.758 -0.762 -0.762 -0.764 -0.776 -0.776 -0.776 -0.778 -0.778 -0.788 -0.788 -0.7916 -0.7936 -0.7936 -0.7936 -0.8046 -0.8231 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.00034 0.00065 0.00106 0.00138 0.00155 0.00196 0.00233 0.00265 0.00312 0.00352 0.00352 0.00457 0.00457 0.00457 0.00535 0.00577 0.00616 0.00616 0.00743 0.00743 0.00743 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5275 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.7860 0.8194 0.8490 0.8490 0.8490 0.8490 0.8490 0.8950 0.9224 0.9224 0.9224 0.9413 0.9584 0.9836 | CP(STAT -0.752 -0.752 -0.756 -0.758 -0.762 -0.762 -0.762 -0.7762 -0.7762 -0.7762 -0.7762 -0.7762 -0.7762 -0.7762 -0.7762 -0.7763 -0.7803 -0.7803 -0.7804 -0.7933 -0.7933 -0.8305 |
| Z/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.0034 0.00065 0.00138 0.00155 0.00196 0.00233 0.00235 0.00312 0.0032 0.0032 0.00492 0.00497 0.00535 0.00577 0.00616 0.00663 0.00701 0.00790 0.00838 0.00838 0.00838 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6529 0.6924 0.7198 0.7198 0.7732 0.7860 0.8194 0.8494 0.84852 0.9224 0.9413 0.9584 0.9738 | CP(STAT -0.752 -0.752 -0.756 -0.756 -0.762 -0.762 -0.769 -0.772 -0.776 -0.7780 -0.7780 -0.780 -0.781 -0.781 -0.781 -0.781 -0.783 -0.781 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 -0.783 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.00034 0.00065 0.00138 0.00155 0.00196 0.00265 0.00312 0.00352 0.00352 0.00352 0.00457 0.00457 0.00457 0.00663 0.00743 0.00743 0.00743 0.00790 0.00783 0.00790 0.00887 0.00887 0.00928 0.00928 0.00928 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6524 0.7198 0.7419 0.7419 0.7432 0.7860 0.8194 0.8493 0.9124 0.9214 0.95848 0.9684 | CP(STAT -0.752 -0.752 -0.756 -0.756 -0.762 -0.764 -0.776 -0.776 -0.776 -0.778 -0.788 -0.888 -0.888 -0.888 -0.888 -0.888 -0.888 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00467 0.00530 0.00530 0.00589 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.00034 0.00065 0.00106 0.00135 0.00196 0.00263 0.00263 0.00312 0.00352 0.00352 0.00422 0.00457 0.00494 0.00535 0.00535 0.00537 0.00616 0.00663 0.00791 0.00791 0.00791 0.00791 0.00887 0.00928 0.00928 0.00928 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.7860 0.8194 0.8494 0.8494 0.8495 0.9122 0.9224 0.9224 0.9413 0.9584 0.9938 0.9836 0.9836 | CP(STAT -0.752 -0.752 -0.756 -0.758 -0.762 -0.762 -0.763 -0.776 -0.776 -0.776 -0.776 -0.778 -0.780 -0.780 -0.780 -0.780 -0.781 -0.791 -0.791 -0.793 -0.8137 -0.831 -0.8381 -0.8489 -0.857 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.0034 0.00065 0.00138 0.00155 0.00196 0.00233 0.00235 0.00312 0.00352 0.00392 0.00492 0.00497 0.00535 0.00577 0.00616 0.00663 0.00701 0.00790 0.00887 0.00887 0.00928 0.00966 0.01099 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7198 0.7732 0.7860 0.8194 0.8895 0.924 0.924 0.9238 0.9837 0.9838 0.9837 | CP(STAT -0.752 -0.754 -0.756 -0.759 -0.762 -0.766 -0.769 -0.776 -0.776 -0.776 -0.778 -0.783 -0.783 -0.786 -0.781 -0.796 -0.783 -0.783 -0.786 -0.783 -0.783 -0.783 -0.784 -0.783 -0.833 -0.8381 -0.8381 -0.8381 -0.8381 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00467 0.00530 0.00530 0.00589 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.0034 0.00055 0.00106 0.00138 0.00155 0.00196 0.00265 0.00312 0.00352 0.00352 0.00352 0.00457 0.00457 0.00457 0.00663 0.00577 0.00663 0.00790 0.00790 0.00790 0.00790 0.00838 0.00887 0.00928 0.00928 0.00928 0.01001 0.01058 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7419 0.7732 0.7860 0.8194 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 0.8490 | CP(STAT -0.752 -0.754 -0.756 -0.756 -0.762 -0.764 -0.776 -0.776 -0.776 -0.776 -0.778 -0.788 -0.88 |
| 7/C 0.00015 0.00068 0.00120 0.00176 0.00176 0.00248 0.00248 0.00248 0.00248 0.00248 0.00376 0.00467 0.00530 0.00530 0.00530 0.00753 | STATIC) =-1.152 U/UP 0.5293 0.6854 0.7557 0.7944 0.8078 0.8467 0.8706 0.8851 0.9127 0.9373 0.9543 0.9764 0.9993 0.9993 0.9997 | Z/C 0.00036 0.00095 0.00143 0.00155 0.00218 0.00258 0.00295 0.00397 0.00448 0.00507 0.00568 0.00618 0.00658 0.00696 0.00742 0.00742 0.00742 0.00794 0.00840 0.00840 | U/UP 0.5879 0.7044 0.7455 0.7949 0.8184 0.8598 0.8850 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 0.9018 | CP(STATIC) -1.2347 -1.2342 -1.2337 -1.2337 -1.2331 -1.2321 -1.2316 -1.2316 -1.2316 -1.2317 -1.2307 -1.2307 -1.2297 -1.2294 -1.2297 -1.2287 -1.2278 -1.2278 -1.2278 -1.2279 -1.2269 -1.2269 | 7/C 0.0034 0.00065 0.00138 0.00155 0.00196 0.00233 0.00235 0.00312 0.00352 0.00392 0.00492 0.00497 0.00535 0.00577 0.00616 0.00663 0.00701 0.00790 0.00887 0.00887 0.00928 0.00966 0.01099 | U/UP 0.1143 0.3129 0.4296 0.4893 0.5771 0.6264 0.6529 0.7198 0.7198 0.7732 0.7860 0.8194 0.8895 0.924 0.924 0.9238 0.9837 0.9838 0.9837 | CP(STAT -0.752 -0.752 -0.756 -0.758 -0.762 -0.762 -0.763 -0.776 -0.776 -0.776 -0.776 -0.778 -0.780 -0.780 -0.780 -0.780 -0.781 -0.791 -0.791 -0.793 -0.8137 -0.831 -0.8381 -0.8489 -0.857 |

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1 (continued)

M= 0.750 ALPHA= 3.19 RE= 6200000.

| x/C= 0.650 | Y/C= 2.60 | UPPER | x/c= 0.750 | Y/C= 2.21 | UppER | x/C= 0.900 | Y/C= 2.43 | S UPPER |
|------------|-----------|-----------|-------------|---------------|-------|------------|-----------|--------------------|
| 7/C | U/UP C | P(STATIC) | CONSTANT CP | STATIC) =- 0. | 355 | Z/C | U/UP | CP(STATIC) |
| 0.00109 | 0.0963 | -0.5250 | | | 0.007 | 0.00088 | 0.2463 | -0.1014 |
| 0.00162 | 0.1133 | -0.5250 | 7/0 | U/IIP | | 0.00167 | 0.2558 | -0.1029 |
| 0.00240 | 0.1198 | -0.5250 | 0.00099 | 0.0661 | | 0.00762 | 0.2587 | -0.1048 |
| 0.00344 | 0.1389 | -0.5250 | 0.00279 | 0.0665 | | 0.00514 | 0.2737 | -0.1096 |
| 0.00490 | 0.2277 | -0.525n | 0.00328 | 0.0584 | | 0.00672 | 0.3060 | -0.1126 |
| 0.00610 | 0.2827 | -0.5250 | 0.00403 | 0.0500 | | 0.00836 | 0.3497 | -0.1158 |
| 0.00770 | 0.3887 | -0.5250 | 0.00499 | 0.0504 | | 0.00974 | 0.3745 | -0.1184 |
| 0.00948 | | -0.5250 | 0.00735 | 0.1070 | | 0.01177 | 0.4259 | -0.1223 |
| 0.01117 | 0.6539 | -0.5250 | 0.00869 | 0.1596 | | 0.01364 | 0.4573 | -0.1259 |
| 0.01284 | 0.7798 | -0.5220 | 0.01021 | 0.2166 | | | | -0.1294 |
| 0.01453 | | -0.5190 | 0.01163 | 0.2763 | | 0.01548 | 0.4982 | |
| 0.01645 | 0.9612 | -0.5156 | 0.01304 | 0.3371 | | 0.01694 | 0.5424 | -0.1322 |
| 0.01805 | 0.9890 | -0.5127 | 0.01457 | 0.3911 | | 0.01776 | 0.5737 | -0.1338 -0.1350 |
| 0.01878 | | -0.5114 | 0.01618 | 0.4511 | | 0.01890 | | -0.1348 |
| 0.01997 | | -0.5093 | 0.01758 | 0.5245 | | 0.01955 | 0.6140 | |
| 0.02061 | | -0.5081 | 0.01827 | 0.5710 | | 0.02710 | 0.6689 | -0.1338 |
| 0.02146 | | -0.5066 | 0.01939 | 0.6281 | | 0.02390 | 0.7259 | -0.1331 |
| 0.02273 | | -0.5043 | 0.01995 | 0.6534 | | 0.02561 | 0.7726 | -0.1324 |
| 0.02415 | | -0.5018 | 0.02207 | 0.7454 | | 0.02710 | 0.7915 | -0.1319 |
| 0.02565 | | -0.4991 | 0.02362 | 0.8104 | | 0.02880 | 0.8360 | -0.1312 |
| 0.02753 | | -0.4957 | 0.02496 | 0.8665 | | 0.03090 | | -0.1304 |
| 0.02938 | 0.9996 | -0.4924 | 0.02616 | 0.8980 | | 0.03267 | 0.8867 | -9.1297 -0.1289 |
| 0.03127 | | -0.4890 | 0.02747 | 0.9318 | | 0.03596 | 0.9459 | -0.1284 |
| 0.03291 | | -0.4861 | 0.02913 | 0.9541 | | 0.03678 | 0.9545 | -0.1281 |
| | | | 0.03063 | 0.9687 | | | | |
| | | | 0.03215 | 0.9856 | | 0.03755 | 0.9640 | -0.1278 |
| | | | 0.03317 | 0.9869 | | 0.03992 | 0.9766 | -0.1269 |
| | | | 0.03373 | 0.9925 | | 0.04097 | 0.9821 | -0.1265 |
| | | | 0.03428 | 0.9936 | | 0.04195 | 0.9915 | -0.1261 |
| | | | 0.03516 | 0.9939 | | 0.04396 | 0.9951 | -0.1253 |
| | | | 0.03606 | 0.9968 | | 0.04604 | 0.9961 | -0.1245 |
| | | | 0.03685 | 0.9976 | | 0.04670 | 0.9972 | -0.1242 |
| | | | 0.03760 | 0.9998 | | 0.04736 | 0.9975 | -0.1240 |
| | | | 0.03906 | 1,0000 | | 0.04913 | 1.0004 | -0.1233 -0.1228 |
| | | | | | | 0.05029 | 1.0000 | -0.1225 |
| | | | | | | | | |

Table 6.8 (continued)

CASE 10 PROBES C1 (concluded)

M= 0.750 ALPHA= 3.19 RE= 6200000.

| x/C= 1.000 | Y/C= 2.0 | S MAKE | x/C= 1.025 | Y/C= 2.4 | 2 VAKE | x/C= 2.000 | 1/6= 1. | O WAKE |
|------------|----------|--|-----------------------------------|----------|---|------------|---------|--|
| 7/0 | 11/110 | CP(STATIC) | Z/C | U/UP | CP(STATIC) | 2/0 | U/UP | CP(STATIC) |
| -0.01926 | 1.0000 | 0.0787 | -0.02910 | 1.0000 | 0.1287 | -0.14581 | 1,0000 | 0.0255 |
| -0.01743 | 0.9918 | 0.0742 | -0.02717 | 0.9992 | 0.1279 | -0.13638 | 0.9991 | 0.0320 |
| -0.01565 | 0.9815 | 9.0699 | -0.02522 | 0.9995 | 0.1271 | -0.12313 | 0.9988 | 0.0225 |
| -0.01348 | 0.9556 | 0.0646 | -0.02310 | 0.9978 | 0.1262 | -0.11342 | 0.9993 | 0.0250 |
| -0.01203 | 1.9318 | 0.0610 | -0.02158 | 0.9964 | 0.1255 | -0.10663 | 0.0001 | 0.0264 |
| -0.01064 | 0.9042 | 0.0576 | -0.02010 | 0.9923 | 0.1249 | -0.09904 | 0.9996 | 0.0248 |
| -0.00880 | 0.8700 | 0.0512 | -0.01812 | 0.9818 | 0.1241 | -0.09138 | 0.9988 | 0.0251 |
| -0,00773 | 0.8490 | 0.0459 | -0.01703 | 0.9698 | 0.1236 | -0.08289 | 0.9991 | 0.0253 |
| -0.00616 | 0.8256 | 0.0382 | -0.01560 | 0.9527 | 0.1230 | -0.07277 | 0.9983 | 0.0265 |
| -0.00516 | 0.8078 | 0.0332 | -0.01450 | 0.9362 | 0.1226 | -0.06650 | 0.9990 | 0.0237 |
| -0.00449 | 0.7942 | 0.0299 | -0.01382 | 0.9254 | 0.1223 | -0.06020 | 0.9980 | 0.0222 |
| -0.00373 | 0.7838 | 0.0262 | -0.01315 | 0.9129 | 0,1220 | -0.05228 | 0.9977 | 0.0218 |
| -0.00282 | 0.7655 | 0.0217 | -0.01222 | 0.8964 | 0.1216 | -0.04271 | 0.9937 | 0.0236 |
| -0.00210 | 0.7346 | 0.0181 | -0.01140 | 0.8815 | 0.1213 | -0.03550 | 0.9904 | 0.0220 |
| -0.00145 | 0.6081 | 0.0149 | -0.01073 | 0.8687 | 0.1210 | -0.02663 | 0.9837 | 0.0170 |
| -0.00043 | 0.1563 | 0.0114 | -0.00998 | 0.8549 | 0.1207 | | | The state of the s |
| 0.00005 | 0.1510 | 0.0090 | -0.00940 | 0.8458 | 0.1204 | -0.01854 | 0.9747 | 0.0166 |
| 0.00070 | 0.1987 | 0.0058 | -0.00865 | 0.8343 | 0.1192 | -0.01203 | 0.9662 | |
| 0.00150 | 0.1759 | 1.0018 | -0.00780 | 0.8174 | 0.1178 | -0.00306 | 0.9477 | 0.0134 |
| 0.00417 | 0.2297 | -9.0104 | -0.00611 | 0.7887 | 0.1148 | 0.00595 | 0.9287 | 0.0144 |
| 0.00551 | 0.2557 | -0.0124 | -0.00492 | 0.7555 | 0.1127 | 0.01418 | 0.9174 | 0.0078 |
| 0.00637 | 0.2399 | -0.0144 | -0.00342 | 0.6696 | 0.1101 | 0.02078 | 0.9092 | 0.0032 |
| 0.00825 | 1.2615 | -0.0165 | -0.00187 | 0.5498 | C - C - C - C - C - C - C - C - C - C - | 0.03152 | 0.9004 | 0.0117 |
| 0.00905 | 0.2873 | -0.0177 | and financial to him the state of | | 0.1074 | 0.03929 | 0.8988 | 0.0136 |
| 0.00985 | 0.2698 | -0.0189 | -0.00048 | 0.4508 | 0.1050 | 0.04760 | 0.9012 | 0.0099 |
| 0.01126 | 0.2992 | -0.0210 | 0.00033 | 0.4216 | 0.1035 | 0.05509 | 0.9051 | 0.0072 |
| 0.01350 | 0.2852 | -0.0244 | 0.00154 | 0.3999 | 0.1020 | 0.06426 | 0.9140 | 0.0093 |
| 0.01551 | 0.3091 | -0.0260 | 0.00310 | 0.3997 | 0.0992 | 0.07177 | 0.9193 | 0.0050 |
| 0.01755 | 1.3589 | -9.9267 | 0.00533 | 0.4118 | 0.0953 | 0.07929 | 0.9309 | 0.0067 |
| 0.01919 | 0.3724 | -0.0272 | 0.00743 | 0.4375 | 0.0917 | 0.08932 | 0.9412 | 0.0088 |
| 0.02074 | 0.4065 | -0.0277 | 0.00967 | 0.4825 | 0.0877 | 0.09768 | 0.9497 | 0.0098 |
| 0.02243 | 0.4176 | -0.0283 | 0.01153 | 0.5173 | 0.0845 | 0.10437 | 0.9547 | 0.0100 |
| 0.02425 | 0.4372 | -0.0238 | 0.01329 | 0.5447 | 0.0814 | 0.11273 | 0.9607 | 0.0109 |
| 0.02581 | 0.4306 | -0.0294 | 0.01519 | 0.5761 | 0.0781 | 0.12276 | 0.9668 | 0.0090 |
| 0.02675 | 0.4839 | -0.0297 | 0.01715 | 0.6093 | 0.0747 | 0.12944 | 0.9703 | 0.0128 |
| 0.02735 | 0.5010 | -0.0299 | 0.01883 | 0.6273 | 0.0731 | 0.13778 | 0.9717 | 0.0148 |
| 0.02841 | 0.5100 | -0.0302 | 0.01986 | 0.6550 | 0.0726 | 0.14611 | 0.9752 | 0.0117 |
| 0.02917 | 0.5098 | -0.0305 | 0.02049 | 0.6703 | 0.0722 | 0.16437 | 0.9791 | 0,0068 |
| 0.03051 | 0.5185 | -0.0309 | 0.02174 | 0.6892 | 0.0715 | 0.18089 | 0.9872 | 0.0089 |
| 0.03215 | 0.5593 | -0.0314 | 0.02252 | 0.7024 | 0.0711 | 0.19976 | 0.9851 | 0.0116 |
| 0.03370 | 0.5965 | -0.0319 | 0.02408 | 0.7745 | 0.0702 | 0.22413 | 0.9868 | 0.0068 |
| 0.03511 | 0.6071 | -0.0324 | 0.02584 | 0.7611 | 0.0692 | 0.26157 | 0.9900 | 0.0078 |
| 0.03654 | 1.6334 | -9.0329 | 0.02757 | 0.7920 | 0.0682 | 0.33582 | 0.9945 | 0.0057 |
| 0.03789 | 0.6800 | -0.0333 | 0.02009 | 0.8134 | 0.0674 | 0.40633 | 0.9981 | -0.0015 |
| 0.03914 | 0.6873 | -0.0337 | 0.03061 | 0.8379 | 0.0665 | 0.46367 | 0.9985 | -0.0050 |
| 0.04005 | 0.7222 | -0.0340 | 0.03228 | 0.8667 | 0.0656 | 0.51265 | 0.9991 | -0.0051 |
| 0.04123 | 0.7366 | -0.0344 | 0.03365 | 0.8877 | 0.0648 | 0.54738 | 0.9999 | -0.0095 |
| 0.04207 | 0.7585 | -0.0347 | 0.03478 | 0.9036 | 0.0642 | 0.56943 | 1.0000 | -0.0095 |
| 0.04270 | 0.7581 | -0.0349 | 0.03605 | 0.9181 | 0.0634 | | | |
| 0.04312 | 0.7890 | -0.0350 | 0.03703 | 0.9255 | 0.9629 | | | |
| 0.04389 | 0.7592 | -0.0353 | 0.03780 | 0.9357 | 0.0625 | | | |
| 0.04458 | 0.7962 | -0.0355 | 0.03821 | 0.9444 | 0.0622 | | | |
| 0.04520 | 0.7860 | -0.0357 | 0.03985 | 0.9552 | 0.0613 | | | |
| 0.04602 | 0.7989 | -0.0360 | 0.04053 | 0.9586 | 0.0609 | | | |
| 0.04669 | 0.8030 | -0.0362 | 0.04147 | 0.9629 | 0.0604 | | | |
| 0.04675 | 0.8045 | -0.0362 | 0.04234 | 0.9681 | 0.0599 | * | | |
| 0.06265 | 1.0000 | -0.0412 | 0.05015 | 1.0000 | 0.0486 | | | |
| | | The state of the s | | | | | | |

A CONTRACTOR OF THE PROPERTY OF THE PARTY OF

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PRUBES C

M= 0.730 ALPHA= 3.19 RE= 2700000.

| x/C= 0.152 | Y/C= 1.17 LOWER | X/C= 0.179 | Y/C= 1.04 | UPPER |
|--------------|-----------------|-------------|---------------|-------|
| CONSTANT CPC | STATIC) = 0.003 | CONSTANT CP | STATIC) =-1. | 72 |
| 2/0 | 11/110 | 2/0 | U/IIP | |
| 0.00014 | 0.5708 | 0.00023 | 0.5074 | |
| 0.00026 | 0.7134 | 0.00042 | 0.6029 | |
| 0.00053 | 0.8132 | 0.00061 | 0.6546 | |
| 0.00671 | 0.8509 | 0.60084 | 0.7277 | |
| 0.00095 | 0.8930 | 0.00098 | 0.7477 | |
| 0.00114 | 0.9147 | 0.00119 | 0.7689 | |
| 0.00129 | 0.9375 | 0.00150 | 0.8021 | |
| 0.00144 | 0.9530 | | | |
| 0.00160 | 0.9669 | 0.00164 | 0.8263 | |
| 0.00184 | 0.9833 | 0.00192 | 0.8545 | |
| 0.00199 | 0.9894 | 0.00207 | 0.8630 | |
| 0.00219 | 0.9947 | 0.00221 | 0.8817 | |
| 0.00234 | 0.9972 | 0.00253 | 0.9093 | |
| | | 0.00275 | 0.9237 | |
| 0.00250 | 0.9982 | 0.00295 | 0.9386 | |
| 0.00285 | 0.9996 | 0.00321 | 0.9527 | |
| 0.00305 | 1.0000 | 0.00353 | 0.9667 | |
| 0.00322 | 1.0000 | 0.00370 | 0.9823 | |
| | | 0.00408 | 0.9912 | |
| | | 0.00444 | 0.9954 | |
| | | 0.00488 | 0.9992 | |
| | | 0.00527 | 0.4597 | |
| | | 0.00563 | 0.9998 | |
| | | 0.00601 | 1.0000 | |
| | | | | |
| | | | | |
| | | | | |
| X/C= 0.404 | Y/C= 1.20 UPPER | X/C= 0.498 | Y/C= 1.34 | UPPER |
| CONSTANT CP | (STATIC)=-1.176 | CONSTANT CP | STATIC) =-0.9 | 916 . |
| 2/0 | U/UP | 2/0 | U/UP | |
| 0.00039 | 0.5509 | 0.00032 | 0.4965 | |
| 0.00039 | 0.5824 | 0.00071 | 0.5409 | |
| 0.00059 | 0.6448 | 0.00087 | 0.5442 | |
| 0.00108 | 0.7003 | 0.00114 | 0.5839 | |
| 0.00128 | 0.7175 | 0.00144 | 0,6083 | |
| 0.00168 | 0.7558 | 0.00182 | 0.6426 | |
| 0.00200 | 0.7789 | 0.00214 | 0,6566 | |
| 0.00237 | 0.8050 | 0.00242 | 0.6794 | |
| 0.00267 | 0.8205 | 0.00299 | 0.7190 | |

0.00242 0.00299 0.00323

0.00379 0.00405 0.00427 0.00467

0.00492 0.00530 0.00577 0.00628

0.00652 0.00707 0.00760 0.00831 0.00913 0.00966

0.01008

0.01150 0.01214 0.01273 0.01359 0.01441

0.01517

0.8205 0.8376 0.8646 0.8762

0.8974 0.9051 0.9189 0.9413

0.9542 0.9662 0.9766 0.9857 0.9923

0.9973 0.9988 0.9999 0.9997

1.0000

0.00267 0.00301

0.00370

0.00414

0.00471

0.00560 0.00593 0.00648 0.00706 0.00745

0.00809 0.00866 0.00938 0.01008

0.01087

0.6794 0.7190 0.7283 0.7595 0.7667 0.7870 0.8144

0.8144 0.8276 0.8461 0.8623 0.8871 0.8767 0.9230 0.9367 0.9624 0.9759

0.9865 0.9926 0.9970

0.9970 0.9985 0.9992 0.9996 0.9999 1.0000

B-1-

CASE 12 PROBES C (concluded)

M= 0.730 ALPHA= 3.19 RF= 2700000.

| | M= 0.730 ALPHA= 3.19 RF= 270000 | 0. |
|--|--|---|
| X/C= 0.650 Y/C= 2.60 UPPER | X/C= 0.750 Y/C= 2.21 UPPER | X/C= 0.900 Y/C= 2.43 UPPER |
| 2/C U/UP CP(STATIC) | CONSTANT CP(STATIC)=-0.288 | Z/C U/UP CP(STATIC) 0.00065 0.2551 -0.0302 |
| 0.00074 | 2/C U/UP | 0.00065 |
| 0.00214 0.5455 -0.4586 | 0.00078 0.3794 | 0.00207 0.3097 -0.0309 |
| 0.00283 0.5712 -0.4581 | 0.00140 0.4173 | 0.00270 0.3260 -0.0313 |
| 0.00378 0.6172 -0.4574 | 0.00217 0.4392 | 0.00350 0.3467 -0.0316 |
| 0.00456 0.6587 -0.4569 | 0.00258 0.4624 | 0.00428 0.3684 -0.0320 |
| 0.00525 0.7043 -0.4564 | 0.00286 0.4776 | 0.00503 0.3988 -0.0324 |
| 0.00627 0.7457 -0.4557 0.00712 0.7814 -0.4551 | 0.00335 0.4984 0.00410 0.5284 | 0.00587 |
| 0.00712 | 0.00472 0.5442 | 0.00752 0.4732 -0.0336 |
| 0.00897 0.8657 -0.4538 | 0.00547 0.5748 | 0.00844 0.5052 -0.0341 |
| 0.00974 0.8960 -0.4532 | 0.00622 0.6052 | 0.00897 0.5321 -0.0343 |
| 0.01041 0.9220 -0.4528 | 0.00682 0.6424 | 0.00962 0.5542 -0.0346 |
| 0.01117 0.9466 -0.4522 | 0.00762 0.6713 | 0.01020 0.5769 -0.0349 |
| 0.01209 | 0.00833 | 0.01136 |
| 0.01445 0.9977 -0.4499 | 0.00991 0.7668 | 0.01402 0.6871 -0.0368 |
| 0.01653 1.0002 -0.4485 | 0.01053 0.7933 | 0.01602 0.7585 -0.0378 |
| 0.01756 1.0003 -0.4477 | 0.01110 0.8157 | 0.01708 0.7899 -0.0383 |
| 0.01902 0.9998 -0.4467 | 0.01169 0.8415 | 0.01839 0.8356 -0.0389 |
| 0.02045 1.0000 -0.4457 | 0.01250 0.8641 | 0.01977 0.8781 -0.0396 |
| 0.02140 1.0000 -0.4450 0.02260 1.0000 -0.4442 | 0.01330 0.9001 0.01456 0.9342 | 0.02090 |
| 0.02200 1.0000 -0.4422 | 0.01637 0.9743 | 0.02411 0.9696 -0.0418 |
| | 0.01726 0.9857 | 0.02559 0.9881 -0.0425 |
| | 0.01845 0.9947 | 0.02707 0.9957 -0.0432 |
| | 0.01976 0.9984 | 0.02877 0.9974 -0.0440 |
| | 0.02067 0.9994 0.02201 0.9995 | 0.03028 |
| | 0.02338 0.9997 | 0.03317 1.0000 -0.0462 |
| | 0.02461 0.9995 | 0.03486 1.0000 -0.0470 |
| | 0.02566 1.0000 | |
| X/C= 1.000 Y/C= 2.02 WAKE | X/C= 1.025 Y/C= 2.82 WAKE | X/C= 2.000 Y/C= 1.50 WAKE |
| Z/C U/UP CP(STATIC) | Z/C U/UP CP(STATIC) | Z/C U/UP CP(STATIC) |
| -0.02062 0.9911 0.1490 | -0.03441 1.0000 0.1241 | -0.10588 1.0000 0.0246 |
| -0.01667 0.9673 0.1413 | -0.03060 0.9992 0.1231 | -0.08521 1.0004 0.0168 |
| -0.01453 0.9395 0.1325 | -0.02842 0.9984 0.1225 | -0.06729 0.9992 0.0269 |
| -0.01235 0.8985 0.1237 | -0.02615 0.9940 0.1219 | -0.05862 1.0000 0.0188 |
| -0.01025 0.8566 0.1151 -0.00827 0.8138 0.1070 | -0.02395 0.9 85 0 0.1213 | -0.05069 0.9993 0.0192 |
| -0.00827 0.8138 0.1070 -0.00633 0.7800 0.1036 | -0.02174 0.9648 0.1208 -0.01993 0.9401 0.1203 | -0.04191 0.9986 0.0188 -0.03469 0.9 97 1 0.0245 |
| -0.00633 0.7800 0.1036 | -0.01993 0.9401 0.1203 | -0.02663 0.9938 0.0232 |
| -0.00440 0.7393 0.1022 | -0.01795 0.9079 0.1198 | -0.01854 0.9870 0.0197 |
| -0.00258 0.6842 0.1010 | -0.01602 0.8727 0.1193 | -0.01040 0.9740 0.0192 |
| -0.00043 0.2278 0.0997 | -0.01408 0.8345 0.1187 | -0.00142 0.9533 0.0177 |
| 0.00166 0.2309 0.0982 0.00347 0.2417 0.0970 | -0.01198 0.7897 0.1182 -0.00981 0.7541 0.1176 | 0.00678 |
| 0.00496 0.2361 0.0959 | -0.00981 0.7541 0.1176 -0.00823 0.6908 0.1172 | 0.01418 |
| 0.00655 0.3277 0.0948 | -0.00636 0.5249 0.1167 | 0.03017 0.8990 0.0113 |
| 0.00825 0.3497 0.0936 | -0.00458 0.3592 0.1163 | 0.04012 0.9010 0.0123 |
| 0.00985 0.3542 0.0925 | -0.00285 0.2839 0.1158 | 0.04760 0.9108 0.0225 |
| 0.01143 0.4009 0.0914 0.01325 0.4538 0.0901 | -0.00084 0.2811 0.1154 0.00112 0.3189 0.1149 | 0.05592 0.9234 0.0177 0.06426 0.9396 0.0104 |
| 0.01488 0.4979 0.0890 | 0.00269 0.3400 0.1144 | 0.07260 0.9551 0.0162 |
| 0.01638 0.5320 0.0879 | 0.00443 0.3826 0.1140 | 0.08096 0.9695 0.0109 |
| 0.01787 0.5753 0.0869 | 0.00605 0.4355 0.1123 | 0.08932 0.9796 0.0182 |
| 0.01966 0.6406 0.0857 | 0.00799 0.4873 0.1090 | 0.09852 0.9868 0.0187 |
| 0.02105 0.6809 0.0847 | 0.00959 0.5319 0.1063 | 0.11691 0.9938 0.0118 |
| 0.02259 0.7362 0.0836 0.02425 0.7739 0.0825 | 0.01136 0.5854 0.1042 0.01312 0.6343 0.1027 | 0.13945 0.9967 0.0128 0.18089 0.9978 0.0118 |
| 0.02574 0.8247 0.0814 | 0.01478 0.6890 0.1014 | 0.22413 0.9996 0.0089 |
| 0.02683 9.8482 0.0807 | 0.01609 0.7163 0.1003 | 0.25842 0.9996 0.0054 |
| 0.02811 0.8798 0.0798 | 0.01755 0.7541 0.0991 | 0.33218 1.0000 0.0020 |
| 0.02939 0.9149 0.0789 | 0.01899 0.8029 0.0980 | 0.40633 1.0000 -0.0055 |
| 0.03028 0.9363 0.0782 | 0.02002 0.8284 0.0971 | |
| 0.03207 0.9565 0.0770 0.03323 0.9781 0.0762 | 0.02198 | |
| 0.03408 0.9992 0.0756 | 0.02438 0.9164 0.0921 | |
| 0.03485 1.0000 0.0751 | 0.02515 0.9352 0.0911 | |
| | 0.02584 0.9475 0.0902 | |
| | 0.02653 0.9537 0.0893 | |
| | 0.02720 0.9645 0.0884 | |
| | 0.02808 | |
| | 0.02960 0.9860 0.0852 | |
| | 0.03039 0.9907 0.0842 | |
| | 0.03105 0.9926 0.0833 | |
| | 0.03190 0.9954 0.0822 | |
| | 0.03274 0.9962 0.0811 | |
| | 0.03343 0.9981 0.0802 0.03425 0.9989 0.0791 | |
| | 0.03492 0.9992 0.0782 | |
| | 0.03506 0.9993 0.0781 | |
| | 0.03549 1.0000 0.0775 | |
| | 0.03619 1.0004 0.0766 | |
| | 0.03668 0.9996 0.0759 | |
| | 0.03703 1.0000 0.0755 | |

Table 6.8 (continued)

CASE 12 PROBES D

M= 0.730 ALPHA= 3.19 RE= 2700000.

| C/C= 0.152 V/C= 1.17 LOWER | X/C= 0.157 Y/C= 2.42 LOWE |
|----------------------------|-----------------------------|
| INSTANT CP(STATIC) = 0.003 | CONSTANT CP(STATIC) = 0.003 |
| 7/C U/IIP | 7/C 11/11D |
| 0.00014 0.5707 | 0.00013 0.5558 |
| 0.00021 0.6816 | 0.00018 0.5821 |
| 0.00032 0.7528 | 0.00054 0.8001 |
| 0.00051 0.7969 | 0.00067 0.8352 |
| 0.00065 0.8295 | 0.00078 0.8560 |
| 0.00074 0.8498 | 0.00090 0.8737 |
| 0.00097 0.8848 | 0,00103 0.8912 |
| 0.00115 0.9031 | 0,00110 0.9040 |
| 0.00132 0.9298 | 0.00127 0.9237 |
| 0.00147 0.9438 | 0.00140 0.9383 |
| 0.00163 0.9616 | 0.00155 0.9535 |
| 0.00182 0.9783 | 0,00167 0.9660 |
| 0.00199 0.9874 | 0.00185 0.9782 |
| 0.00225 0.9928 | 0.00203 0.9864 |
| 0.00238 0.9961 | 0.00218 0.9923 |
| 0.00252 0.9979 | 0,00227 0.9947 |
| 0.00285 0.9993 | 0.00246 0.9972 |
| 0.00305 0.9993 | 0.00271 0.9987 |
| 0.00331 1.0000 | 0.00300 1.0000 |
| 0.00363 1.0000 | 0.00317 0.9996 |
| 0.00382 1.0000 | 0.00342 1.9004 |
| | 0.00367 1.0001 |
| | 0.00396 1.0000 |

| x/C= 0.179 | Y/C= 1.04 UPPE | R X/C= 0.179 | Y/C= 1.88 | UPPER X | /c= 0.179 | Y/C= 2.29 | UPPER |
|-------------|----------------|--------------|--------------|---------|-----------|---------------|-------|
| CONSTANT CP | STATIC)=-1,072 | CONSTANT CP | STATIC) =-1. | 072 CO | STANT CP | (STATIC) =-1. | 72 |
| 2/C | U/UP | z/C | U/uP | | Z/C | U/UP | |
| 0.00017 | 0.5192 | 0.00014 | 0.4785 | | 0.00015 | 0.4820 | |
| 0.00023 | 0.5659 | 0.00016 | 0.5261 | | 0.00030 | 0.6334 | |
| 0.00040 | 0.6191 | 0.00023 | 0.5994 | | 0.00048 | 0.6811 | |
| 0.00045 | 0.6605 | 0.00036 | 0.6470 | | 0.00069 | 0.7150 | |
| 0.00061 | 0.6940 | 0.00047 | 0.6830 | | 0.00073 | 0.7206 | |
| 0.00071 | 0.7146 | 0.00054 | 0.6981 | | 0.00100 | 0.7670 | |
| 0.00088 | 0.7396 | 0.00062 | 0.7190 | | 0.00130 | 0.7988 | |
| 0.00119 | 0.7833 | 0.00091 | 0.7574 | | 0.00160 | 0.8314 | |
| 0.00140 | 0.8051 | 0.00121 | 0.7910 | | 0.00179 | 0.8525 | |
| 0.00162 | 0.8313 | 0.00140 | 0.8172 | | 0.00209 | 0.8765 | |
| 0.00187 | 0.8521 | 0.00175 | 0.8432 | | 0.00230 | 0.8996 | |
| 0.00206 | 0.8717 | 0.00222 | 0.8861 | | 0.00260 | 0.9242 | |
| 65500.0 | 0.8920 | 0.00250 | 0.9137 | | 0.00287 | 0.9443 | |
| 0.00255 | 0.9135 | 0.00279 | 0.9380 | | 0.00321 | 0.9665 | |
| 0.00282 | 0.9352 | 0.00311 | 0.9592 | | 0.00356 | 0.9821 | |
| 0.00318 | 0.9548 | 0.00337 | 0.9770 | | 0.00390 | 0.9925 | |
| 0.00348 | 0.9744 | 0.00368 | 0.9875 | | 0.00421 | 0.9971 | |
| 0.00380 | 0.9872 | 0.00399 | 0.9941 | | 0.40456 | 0.9994 | |
| 0.00424 | 0.9956 | 0.00430 | 0.9973 | | 0.00475 | 0.9997 | |
| 0.00467 | 0.9992 | 0.00460 | 0.9986 | | 0.00515 | 0.9999 | |
| 0.00572 | 1.0003 | 0.00486 | 0.9995 | | 0.00557 | 0.9997 | |
| 0.05549 | 1.0000 | 0.00521 | 1.0002 | | 0.00590 | 1.0000 | |
| 0.(0581 | 1.0000 | 0.00565 | 0.9999 | | | | |
| | | 0.00598 | 0.9999 | | | | |
| | | 0.00621 | 1.0000 | | | | |
| | | | | | | | |

Table 6.8 (continued)

CASE 12 PROBES D (continued)

M= 0.730 ALPHA= 3.19 RE= 2700000.

| X/C= 0.319 | Y/C= 1.15 UPPER | X/C= 0.319 | Y/C= 1.98 UPPE | R X/C= 0.319 | Y/C= 2.40 UP | PER |
|-------------|-----------------|-------------|----------------|--------------|----------------|-----|
| CONSTANT CP | STATIC)=-1.142 | CONSTANT CP | STATIC)=-1.142 | CONSTANT CP | STATIC)=-1,142 | |
| 2/C | U/UP | 2/C | U/UP | Z/C | U/UP | |
| 0.00012 | 0.5107 | 0.00025 | 0.5867 | 0.00013 | 0.4808 | |
| 0.00020 | 0.6290 | 0.00038 | 0.6383 | 0.00053 | 0.6587 | |
| 0.00046 | 0.6769 | 0.00050 | 0.6686 | 0.00079 | 0.7058 | |
| 0.00068 | 0.7098 | 0.00060 | 0.6812 | 0.00112 | 0.7365 | |
| 0.00087 | 0.7384 | 0.00072 | 0.6987 | 0.00138 | 0.7585 | |
| 0.00105 | 0.7549 | 0.00098 | 0.7283 | 0.00169 | 0.7801 | |
| 0.00125 | 0.7715 | 0.00126 | 0.7527 | 0.00197 | 0.8025 | |
| 0.00150 | 0.7924 | 0.00146 | 0.7708 | 0.00226 | 0.8258 | |
| 0.00181 | 0.8151 | 0.00176 | 0.7912 | 0.00258 | 0.8454 | |
| 0.00218 | 0.8357 | 0.00222 | 0.8226 | 0.00295 | 0.8668 | |
| 0.00245 | 0.8550 | 0.00255 | 0.8431 | 0.00331 | 0.8865 | |
| 0.00274 | 0.8763 | 0.00283 | 0.8631 | 0.00368 | 0.9056 | |
| 0.00316 | 0.8984 | 0.00312 | 0.8789 | 0.00402 | 0.9216 | |
| 0.00374 | 0.9228 | 0.00342 | 0.8953 | 0.00444 | 0.9387 | |
| 0.00417 | 0.9425 | 0.00369 | 0.9087 | 0.00467 | 0.9484 | |
| 0.00457 | 0.9583 | 0.00400 | 0.9232 | 0.00498 | 0.9618 | |
| 0.00495 | 0.9697 | 0.00431 | 0.9365 | 0.00545 | 0.9768 | |
| 0.00523 | 0.9782 | 0.00457 | 0.9471 | 0.00578 | 0.9853 | |
| 0.00543 | 0.9820 | 0.00495 | 0.9610 | 0.00616 | 0.9720 | |
| 0.00584 | 0.9706 | 0.00527 | 0.9729 | 0.00647 | 0.9953 | |
| 0.00618 | 0.9953 | 0.00567 | 0.9827 | 0.00675 | 0.9981 | |
| 0.00659 | 0.9978 | 0.00607 | 0.9899 | 0.00675 | 0.9982 | |
| 0.00686 | 0.9985 | 0.00643 | 0.9946 | 0.00680 | 0.9977 | |
| 0.00744 | 0.9995 | 0.00676 | 0.9978 | 0.00714 | 0.9992 | |
| 0.00752 | 0.9998 | 0.00676 | 0.9980 | 0.00742 | 0.9997 | |
| 0.00754 | 0.9998 | 0.00681 | 0.9977 | 0.90/72 | 1.0001 | |
| 0.00754 | 0.9995 | 0.00712 | 0.9990 | 0.00790 | 1.0000 | |
| 0,00781 | 1.0003 | 0.00752 | 0.9997 | 3.00770 | | |
| 0.00781 | 1.0002 | 0.00784 | 0.9998 | | | |
| 0.00788 | 0.9999 | 0.00809 | 0.9998 | | | |
| 0.00810 | 1.0001 | 0.00845 | 1.0000 | | | |
| 0.00833 | 1.0000 | • | | | | |

| x/C= 0.404 | Y/C= 1.20 UPF | PER X/C= 0.404 | Y/C= 2,03 | UPPER | X/C= 0.404 | Y/C= 2.45 | UPPER |
|-------------------------------|----------------------------|--------------------|----------------|-------|-------------|------------------|-------|
| CONSTANT CP | (STATIC)=-1,176 | CONSTANT CP | STATIC) =-1. | 176 | CONSTANT CP | (STATIC)=-1. | 176 |
| 0.00020 | U/UP 0.4758 | 2/C 0.00035 | U/UP 0.5798 | | 2/0 | U/UP | |
| 0.00044 | 0.5816 0.6278 | 0.00061 0.00079 | 0.6174 | | 0.00033 | 0.5666 | |
| 0.00076 | 0.6673 | 0,00088 0,00115 | 0.6737 | | 0.00062 | 0.6867 | |
| 0.00116 | 0.7067 | 0.00142 | 0.7239 | | 0.00158 | 0.7446 | |
| 0.00148 | 0.7297 | 0.00180 | 0.7617 | | 0.00193 | 0.7728 | |
| 0.00189 | 0.7681 0.7818 | 0.00249 | 0.8009 | | 0.00287 | 0.8309 0.8583 | |
| 0.00239 | 0.8024 0.8330 0.8500 | 0.00342 | 0.8474 | | 0.00360 | 0.8771 | |
| 0.00326 0.00358 0.00395 | 0.8695 0.8875 | 0.00530 | 0.9250 | | 0.00453 | 0.9180 | |
| 0.00435 | 0.9021 | 0.00628 0.00685 | 0.9652 | | 0.00572 | 0.9565 | |
| 0.00521 | 0.9389 | 0.00732 | 0.9907 | | 0.00693 | 0.9881 | |
| 0.00630 | 0.9735 | 0.00840 | 0.9972 | | 0.00809 | 0.9982 | |
| 0.00749 | 0.9934 | 0.00943 | 0.9990 | | 0.00912 | 1.0000 | |
| 0.00910 | 0.9995 | 0.01137 | 0.9991 | | 0.01053 | 1.0000 | |
| 0.01051 | 1.0001 | 0.01275 | 1,0000 | | | | |
| 0.01163 | 1.0000 | | | | | | |

CASE 12 PROBES D (continued)

| | M= 0.730 ALPHA= 3.19 RE= 27 | 00000. |
|----------------------------------|--|--|
| X/C= 0.498 Y/C= 1.34 UPPER | x/C= 0.498 Y/C= 2.17 UPPER | X/C= 0.498 Y/C= 2.59 UPPER |
| CONSTANT CP(STATIC)=-0.916 | CONSTANT CP(STATIC)=-0.916 | CONSTANT CP(STATIC) =-0.916 |
| Z/C U/UP | Z/C U/UP | 2/C U/UP |
| 0.00028 0.4312 | 0.00015 0.3939 0.00038 0.4531 | 0.00041 0.5234 0.00057 0.5351 |
| 0.00047 0.5011 0.00060 0.5068 | 0.00057 0.4827 | 0.00065 0.5401 |
| 0.00083 0.5404 | 0.00070 0.5107 0.00076 0.5339 | 0.00074 0.5459 0.00091 0.5607 |
| 0.00099 0.5481 0.00111 0.5687 | 0.00099 0.5557 | 0.00112 0.5734 |
| 0.00143 0.5881 | 0.00121 0.5829 | 0.00141 0.5977 |
| 0.00151 0.6030 | 0.00131 0.5943 0.00150 0.6093 | 0.00176 0.6173 0.00203 0.6330 |
| 0.00187 0.6334 0.00210 0.6518 | 0.00194 0.6461 | 0.00227 0.6536 |
| 0.00242 0.6662 | 0.00240 | 0.00232 0.6584 0.00279 0.6669 |
| 0.00306 0.7200 0.00336 0.7260 | 0.00310 0.7310 | 0.00322 0.7155 |
| 0.00366 0.7582 | 0.00381 0.7774 0.00434 0.8029 | 0.00375 0.7398 0.00400 0.7032 |
| 0.00409 0.7843 0.00453 0.7957 | 0.00434 0.8029 0.00477 0.8272 | 0.00448 0.7788 |
| 0.00491 0.8137 | 0.00519 0.8454 | 0.00480 0.8340 |
| 0.00529 | 0.00570 0.8736 0.00603 0.8983 | 0.00529 |
| 0.00578 | 0.00653 0.9176 | 0.00623 0.8755 |
| 0.00685 0.9039 | 0.00702 0.9335 0.00738 0.9442 | 0.00678 0.8999 0.00732 0.9230 |
| 0.00740 0.9256 0.00808 0.9412 | 0.00786 0.9591 | 0.00790 0.9389 |
| 0.00885 0.9638 | 0.00833 0.9707 0.00891 0.9858 | 0.00829 0.9524 0.00862 0.9647 |
| 0.00953 0.9828 0.01005 0.9919 | 0.00947 0.9925 | 0.00902 0.9744 |
| 0.01063 0.9954 | 0.00996 0.9963 0.01067 0.9987 | 0.00966 0.9858 0.01003 0.9927 |
| 0.01108 0.9976 0.01123 0.9986 | 0.01067 0.9989 | 0.01060 0.9961 |
| 0.01190 0.9997 | 0.01067 0.9990 0.01134 0.9998 | 0.01108 0.9982 0.01158 0.9989 |
| 0.01246 1.0009 0.01307 1.0000 | 0.01196 1.0003 | 0.01158 0.9993 |
| 0.01344 0.9983 | 0.01243 1.0001 0.01278 1.0000 | 0.01212 0.9994 |
| 0.01344 0.9988 0.01344 0.9991 | 0,012/6 1,000 | 0.01264 0.9995 0.01305 0.9998 |
| 0.01353 0.9997 | | 0.01341 1.0000 |
| 0.01432 1.0004 0.01498 1.0000 | | 0.01403 1.0000 |
| 0.01493 | X/C= 0.574 Y/C= 2.14 UPPER | X/C= 0.574 Y/C= 2.56 UPPER |
| | Z/C U/UP CP(STATIC |) Z/C U/UP CP(STATIC) |
| | 0.00018 | 0.00032 0.3974 -0.5795 |
| | 0.00052 0.4547 -0.5792 | 0.00055 0.4281 -0.5792 0.00084 0.4494 -0.5788 |
| | 0.00057 0.4543 -0.5792 0.00068 0.4769 -0.5790 | 0.00105 0.4698 -0.5784 |
| | 0.00086 0.4642 -0.5787 | 0.00127 0.4849 -0.5781 0.00131 0.4849 -0.5781 |
| | 0.00094 0.4938 -0.5786 0.00110 0.4897 -0.5784 | 0.00172 0.5116 -0.5775 |
| | 0.00120 0.4864 -0.5782 | 0.00205 0.5329 -0.5770 0.00247 0.5475 -0.5764 |
| | 0.00133 0.5052 -0.5780 | 0.00267 0.5657 -0.5761 |
| | 0.00164 0.5362 -0.5776 0.00195 0.5304 -0.5771 | 0.00305 |
| | 0.00218 0.5465 -0.5768 | 0.00377 0.6344 -0.5744 |
| | 0.00252 0.5676 -0.5763 0.00310 0.5890 -0.5754 | 0.00411 0.6562 -0.5739 0.00450 0.6840 -0.5734 |
| | 0.00343 0.6197 -0.5749 | 0.00493 0.7036 -0.5727 |
| | 0.00383 0.6540 -0.5744 0.00414 0.6771 -0.5739 | 0.00538 |
| | 0.00451 0.6891 -0.5733 | 0.00620 0.7684 -0.5709 |
| | 0.00480 0.6954 -0.5729 0.00518 0.7185 -0.5723 | 0.00647 0.7926 -0.5704 0.0068, 0.8084 -0.5700 |
| | 0.00549 0.7328 -0.5719 | 0.00733 0.8352 -0.5692 |
| | 0.00582 0.7572 -0.5714 0.00621 0.7804 -0.5708 | 0.00761 |
| | 0.00653 0.8083 -0.5704 | 0.00840 0.8964 -0.5676 |
| | 0.00702 | 0.00879 0.9170 -0.5670 |
| | 0.00781 0.8734 -0.5685 | 0.00879 0.9302 -0.5670 0.00882 0.9308 -0.5670 |
| | 0.00840 0.8999 -0.5676 0.00848 0.9072 -0.5675 | 0.00923 0.9440 -0.5664 |
| | 0.00856 0.9097 -0.5674 | 0.00966 0.9568 -0.5657 0.01000 0.9658 -0.5652 |
| | 0.00891 0.9318 -0.5669 | 0.01029 0.9749 -0.5648 |
| | 0.00932 0.9488 -0.5662 0.00969 0.9592 -0.5657 | 0.01080 0.9836 -0.5641 0.01132 0.9904 -0.5633 |
| | 0.00994 0.9683 -0.5653 | 0.01166 0.9936 -0.5628 |
| | 0.01052 | 0.01194 0.9964 -0.5624 0.01236 0.9981 -0.5618 |
| | 0.01135 0.9929 -0.5632 | 0.01287 0.9990 -0.5610 |
| | 0.01170 0.9965 -0.5627 0.01202 0.9971 -0.5623 | 0.01317 0.9996 -0.5606 0.01448 1.0000 -0.5586 |
| | 0.01258 0.9986 -0.5614 | 0.01600 1.0000 -0.5564 |
| | 0.01299 0.9997 -0.5608 0.01396 1.0002 -0.5594 | 0.01728 1.0000 -0.5545 |
| | 0.01521 1.0001 -0.5575 | |

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (concluded)

M= 0.730 ALPHA= 3.19 RE= 2700000.

| | | M= | 0.730 ALP | HA= 3.19 | RE= 270000 | 00. | | |
|------------|----------|------------|----------------------|---------------|------------|------------|-----------|------------|
| x/C= 0.650 | Y/C= 2.6 | 0 UPPER | X/C= 0.750 | Y/C= 2.21 | UPPER | X/C= 0.900 | Y/C= 2.43 | UPPER |
| Z/C | U/UP | CP(STATIC) | CONSTANT CP | (STATIC) == 0 | .288 | 2/C | U/UP | CP(STATIC) |
| 0.00083 | 0.4554 | -0.4595 | | | | 0.00080 | 0.2719 | -0.0303 |
| 0.00135 | 0.4777 | -0.4592 | 2/C | U/UP | | 0.00128 | 0.2929 | -0.0306 |
| 0.00214 | 0.5285 | -0.4586 | 0.00078 | 0.3670 | | 0.00207 | 0.3120 | -0.0309 |
| 0.00214 | 0.5247 | -0.4586 | 0.00148 | 0.4122 | | 0.00207 | 0.3207 | -0.0309 |
| 0.00344 | 0.6013 | -0.4577 | 0.00189 | 0.4297 | | 0.00326 | 0.3488 | -0.0315 |
| 0.00525 | 0.6804 | -0.4564 | 0.00238 | 0.4457 | | 0.00503 | 0.3939 | -0.0324 |
| 0.00695 | 0.7/04 | -0.4552 | 0.00300 | 0.4789 | | 0.00661 | 0.4422 | -0.0332 |
| 0.00873 | 0.8556 | -0.4540 | 0.00300 | 0.4631 | | 0.00827 | 0.4404 | -0.0340 |
| 0.01043 | 0.9158 | -0.4528 | 0.00300 | 0.4684 | | 0.00962 | 0.5287 | -0.0346 |
| 0.01251 | 0.9770 | -0.4513 | 0.00341 | 0.4799 | | 0.01215 | 0.5942 | -0.0359 |
| 0.01470 | 0.9975 | -0.4498 | 0.00390 | 0.4912 | | 0.01449 | 0.6558 | -0.0370 |
| 0.01693 | 0.9995 | -0.4482 | 0.00403 | 0.5215 | | 0.01662 | 0.7259 | -0.0381 |
| 0.01896 | 1.0000 | -0.4468 | 0.00513 | 0.5710 | | 0.01847 | 0.7784 | -0.0390 |
| 0.02087 | 1.0000 | -0.4454 | 0.00669 | 0.6271 | | 0.02049 | 0.8406 | -0.0400 |
| | | | 0.00819 | 0.6919 | | 0.02208 | 0.8761 | -0.0408 |
| | | | 0.00965 | 0.7598 | | 0.02419 | 0.9252 | -0.0418 |
| | | | 0.01096 | 0.8120 | | 0.02590 | 0.9485 | -0.0426 |
| | | | 0.01277 | 0.8820 | | 0.02808 | 0.9773 | -0.0437 |
| | | | 0.01477 | 0.9410 | | 0.02998 | 0.9916 | -0.0446 |
| | | | 0.01669 | 0.9809 | | 0.03162 | 0.9950 | -0.0454 |
| | | | 0.02019 | 0.9994 | | 0.03348 | 0.9983 | -0.0464 |
| | | | 0.02159 | 0.9994 | | 0.03517 | 0.9996 | -0.0472 |
| | | | | 0.9999 | | 0.03859 | 1.0003 | -0.0494 |
| | | | 0.02332 | 1.0000 | | 0.04011 | 1.0000 | -0.0510 |
| .* | | | 0.112413 | 1.0000 | | | | |
| | | | | | | | | |
| | | | | | | | | |
| x/c= 1.000 | Y/C= 2.0 | 2 WAKE | x/c= 1.025 | Y/C= 2.82 | WAKE | x/C= 2.000 | Y/C= 1.5 | 0 WAKE |
| Z/C | U/UP | CP(STATIC) | Z/C | U/UP C | P(STATIC) | 2/0 | U/UP | CP(STATIC) |
| -0.02032 | 0.9856 | 0.1490 | -0.03085 | 1.0000 | 0.1231 | -0.06650 | 1.0000 | 0.0263 |
| -0.02025 | 0.9849 | 0.1490 | -0.02901 | 1.0000 | 0.1227 | -0.05148 | 1.0003 | 0.0230 |
| -0.01850 | 0.9726 | 0.1487 | -0.02691 | 0.9993 | 0.1221 | -0.04351 | 1.0000 | 0.0142 |
| -0.01652 | 0.9482 | 0.1407 | -0.02480 | 0.9993 | 0.1216 | -0.03389 | 0.9990 | 0.0210 |
| -0.01445 | 0.9222 | 0.1322 | -0.02267 | 0.9960 | 0.1210 | -0.03067 | 0.9978 | 0.0186 |
| -0.01227 | 0.8904 | 0.1233 | -0.02084 | 0.9897 | 0.1205 | -0.02744 | 0.9967 | 0.0152 |
| -0.01056 | 0.8644 | 0.1164 | -0.01845 | 0.9730 | 0.1199 | -0.02178 | 0.9929 | 0.0186 |
| -0.00827 | 0.8350 | 0.1070 | -0.01686 | 0.9529 | 0.1195 | -0.02016 | 0.9899 | 0.0210 |
| -0.00675 | 0.8209 | 0.1039 | -0.01517 | 0.9270 | 0.1190 | -0.01447 | 0.9842 | 0.0171 |
| -0.00507 | 0.7964 | 0.1027 | -0.01273 | 0.8851 | 0.1184 | -0.00959 | 0.9764 | 0.0166 |
| -0.00266 | 0.7517 | 0.1010 | -0.01073 | 0.8461 | 0.1179 | -0.00633 | 0.9708 | 0.0186 |
| -0.00043 | 0.0000 | 0.0997 | -0.00823 | 0.7997 | 0.1172 | -0.00224 | 0.9611 | 0.0195 |
| 0.00174 | 0.0000 | 0.0982 | -0.00823 | 0.8025 | 0.1172 | 0.00267 | 0.9495 | 0.0084 |
| 0.00386 | 0.0000 | 0.0967 | -0.00823 | 0.8036 | 0.1172 | 0.00513 | 0.9419 | 0.0152 |
| 0.00598 | 0.0992 | 0.0952 | -0.00602 | 0.7527 | 0.1166 | 0.00513 | 0.9435 | 0.0210 |
| 0.00784 | 0.1805 | 0.0939 | -0.00375 -0.00171 | 0.6438 | 0.1155 | 0.01006 | 0.9295 | 0.0152 |
| 0.00970 | 0.2335 | 0.0926 | 0.00033 | 0.3045 | 0.1150 | 0.01418 | 0.9188 | 0.0152 |
| 0.01143 | 0.3134 | 0.0914 | 0.00245 | 0.2800 | 0.1145 | 0.01830 | 0.9119 | 0.0210 |
| 0.01528 | 0.4328 | 0.0887 | 0.00443 | 0.3008 | 0.1140 | 0.02325 | 0.9047 | 0.0142 |
| 0.01880 | 0.5201 | 0.0863 | 0.00662 | 0.3515 | 0.1113 | 0.02739 | 0.9011 | 0.0162 |
| 0.02090 | 0.5658 | 0.0848 | 0.00847 | 0.3971 | 0.1082 | 0.03070 | 0.8983 | 0.0166 |
| 0.02259 | 0.6278 | 0.0836 | 0.01043 | 0.4528 | 0.1049 | 0.03348 | 0.8984 | 0.0162 |
| 0.02464 | 0.7066 | 0.0822 | 0.01287 | 0.5141 | 0.1030 | 0.04012 | 0.9006 | 0.0152 |
| 0.02620 | 0.7396 | 0.0811 | 0.01495 | 0.5696 | 0.1013 | 0.04427 | 0.9036 | 0.0196 |
| 0.02804 | 0.7913 | 0.0798 | 0.01706 | 0.6302 | 0.0995 | 0.04760 | 0.9076 | 0.0148 |
| 0.02984 | 0.8477 | 0.0786 | 0.01875 | 0.6865 | 0.0982 | 0.05259 | 0.9168 | 0.0069 |
| 0.03176 | 0.8852 | 0.0772 | 0.02088- | 0.7371 | 0.0964 | 0.05509 | 0.9211 | 0.0099 |
| 0.03370 | 0.9291 | 0.0759 | 0.02283 | 0.7971 | 0.0941 | 0.05925 | 0.9287 | 0.0153 |
| 0.03550 | 0.9599 | 0.0746 | 0.02508 | 0.8437 | 0.0912 | 0.06509 | 0.9378 | 0.0069 |
| 0.03680 | 0.9764 | 0.0737 | 0.02713 | 0.8939 | 0.0885 | 0.06760 | 0.9459 | 0.0144 |
| 0.03815 | 0.9849 | 0.0728 | 0.02902 | 0.9321 | 0.0860 | 0.07344 | 0.9520 | 0.0099 |
| 0.03949 | 0.9916 | 0.0718 | 0.03046 | 0.9557 | 0.0841 | 0.07762 | 0.9603 | 0.0104 |
| 0.04192 | 0.9951 | 0.0701 | 0.03213 | 0.9744 | 0.0819 | 0.08096 | 0.9649 | 0.0030 |
| 0.04333 | 0.9972 | 0.0691 | 0.03373 | 0.9849 | 0.0798 | 0.08597 | 0.9724 | 0.0095 |
| 0.04458 | 0.9986 | 0.0683 | 0.03542 | 0.9930 | 0.0776 | 0.09016 | 0.9765 | 0.0129 |
| 0.04554 | 0.9997 | 0.0676 | 0.03640 | 0.9939 | 0.0763 | 0.09434 | 0.9795 | 0.0124 |
| 0.04635 | 1.0000 | 0.0670 | 0.03654 | 0.9958 | 0.0761 | 0.09768 | 0.9842 | 0.0100 |
| | | | 0.03780 | 0.9973 | 0.0745 | 0.10605 | 0.9865 | 0.0218 |
| | | | 0.03924 | 1.0000 | 0.0726 | 0.11273 | 0.9913 | 0.0101 |
| | | | | | | 0.12109 | 0.9937 | 0.0125 |
| | | | | | | 0.13194 | 0.9956 | 0.0136 |
| | | | | | | 0.16437 | 0.9967 | 0.0156 |
| | | | | | | 0.18007 | 0.9984 | 0.0101 |
| | | | | | | 0.19731 | 0.9981 | 0.0201 |
| | | | | | | 0.22976 | 1.0000 | 0.0089 |
| | | | | | | 0.24655 | 0.9997 | 0.0035 |
| | | | | | | 0.26235 | 1.0000 | 0.0000 |
| | | | | | | .,, | | 0.000 |

Table 6.8 (continued)

CASE 13 PROBES D

M= 0.745 ALPHA= 3.19 RE= 2700000.

| X/ | /c= 0.152 | Y/C= 1.17 | LOWER | X/C= 0.152 | Y/C= 2.00 | LOWER | X/C= 0.152 | Y/C= 2.42 | LOWER |
|-----|---|---|-------|---|--|-------|---|---|-------|
| CON | STANT CP | STATIC) =- 0. | 018 | CONSTANT CP | STATIC)=-0. | 018 | CONSTANT CP | (STATIC)==0. | 018 |
| | Z/C | U/UP | | 2/C | U/UP | | Z/C | U/UP | |
| | 0.00014 | 0.5739 | | 0.00017 | 0.6056 | | 0.00013 | 0.5681 | |
| | 0.00025 | 0.6962 | | 0.00023 | 0.6911 | | 0,00018 | 0.6472 | |
| | 0.00032 | 0.7556 | | 0.00029 | 0.7229 | | 0.00026 | 0.7312 | |
| | 0.00044 | 0.7901 | | 0.00038 | 0.7533 | | 0.00043 | 0.7990 | |
| | 0.00055 | 0.8057 | | 0.00044 | 0.7753 | | 0.00052 | 0.8162 | |
| | 0.00069 | 0.8361 | | 0.00060 | 0.8132 | | 0.00062 | 0.8370 | |
| | | | | | | | | 0.8563 | |
| | 0.00079 | 0.8566 | | 0.00070 | 0.8365 | | 0.00075 | 0.8691 | |
| | 0.00088 | | | 0.00079 | 0.8580 | | 0.00082 | | |
| | 0.00097 | 0.8877 | | 0.00089 | 0.8/33 | | 0.00093 | 0.8336 | |
| | 0.00111 | 0.9046 | | 0.00106 | 0.9005 | | | 0.8982 | |
| | 0.00120 | 0.9221 | | 0.00132 | 0.9331 | | 0.00120 | 0.9200 | |
| | 0.00131 | 0.9333 | | | | | 0.00125 | 0.9276 | |
| | 0.00146 | 0.9456 | | 0,00137 | 0.9410 | | 0.00133 | 0.9359 | |
| | 0.00152 | 0.9546 | | 0.00146 | 0.9499 | | 0.00142 | 0.9461 | |
| | 0.00167 | 0.9638 | | 0.00158 | 0.9620 | | 0.00150 | 0.9535 | |
| | 0.00173 | 0.9720 | | 0.00166 | 0.9684 | | 0.00157 | 0.9609 | |
| | 0.00185 | 0.9823 | | 0.00175 | 0.9751 | | 0.00170 | 0.9711 | |
| | 0.00202 | 0.9893 | | 0.00186 | 0.9824 | | 0.00179 | 0.9771 | |
| | 0.00213 | 0.9917 | | 0.00197 | 0.9862 | | 0.00190 | 0.9829 | |
| | 0.00243 | 0.9967 | | 0.00203 | 0.9888 | | 0.00210 | 0.9901 | |
| | 0.00273 | 0.9993 | | 0.00212 | 0.9916 | | 0.00222 | 0.9944 | |
| | 0.00297 | 0.9993 | | 0.00223 | 0.9937 | | 0.00239 | 0.9971 | |
| | 0.00318 | 1.0000 | | 0.00232 | 0.9945 | | 0.00275 | 0.9994 | |
| | 0.00362 | 1.0000 | | 0.00262 | 0.9977 | | 0.00293 | 1.0000 | |
| | 0.00402 | 1.0000 | | 0.00295 | 1.0000 | | 0,40331 | 1.0000 | |
| | | | | 0.00319 | 0.9989 | | | | |
| | | | | 0.00344 | 0.9984 | | | | |
| | | | | 0.00392 | 0.9994 | | 4 | | |
| | | | | 0.00505 | 1.0000 | | | | |
| | | | | 0.00559 | 1.0000 | | | | |
| | | | | | | | | | |
| | 10-0 130 | | | V/0- 0 4-0 | W15- 4 00 | | V/C= 0 139 | V/C= 2 20 | HARER |
| | /C= 0.179 | Y/C= 1.04 | UPPER | X/C= 0.179 | Y/C= 1.88 | UPPER | X/C= 0.179 | | UPPER |
| | | Y/C= 1.04 (STATIC)=-0. | | | STATIC)=-0.9 | | CONSTANT CP | STATIC)=-0.9 | |
| | | | | | | | CONSTANT CPC | STATIC)==0.9 | |
| | NSTANT CP | (STATIC)=-0. | | CONSTANT CP | STATIC)=-0.9 | | Z/C 0.00017 | U/UP 0.5063 | |
| | NSTANT CP | (STATIC)=-0. | | CONSTANT CPC | STATIC)==0.9 | | CONSTANT CPC | U/UP 0.5063 0.6414 | |
| | Z/C 0.00017 | U/UP 0.4893 | | Z/C 0,00023 | STATIC)==0.9 | | 2/C 0.00017 0.00035 0.00053 | U/UP 0.5063 0.6414 0.6853 | |
| | Z/C 0.00017 0.00024 | U/UP 0.4893 0.5565 | | Z/C 0.00023 0.00030 | U/UP 0.5492 0.5996 | | 2/C 0.00017 0.00035 0.00053 0.00071 | U/UP 0.5063 0.6414 0.6853 0.7195 | |
| | 2/C 0.00017 0.00024 0.00034 | U/UP 0.4893 0.5565 0.6074 | | Z/C 0.00023 0.00030 0.00036 | U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 | U/UP 0.5063 0.6414 0.6853 0.7195 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 | U/UP 0.4893 0.5565 0.6074 0.6324 | | Z/C 0.00023 0.00030 0.00036 0.00051 | U/UP 0.5492 0.5996 0.6331 0.6754 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00060 | U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00134 0.00149 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 | |
| | 7/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00055 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 | U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 | | Z/C 0.00017 0.00035 0.00053 0.00053 0.00098 0.00134 0.00149 | U/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 | |
| | 2/C 0.00017 0.00024 0.00034 0.00034 0.00045 0.00055 0.00055 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00060 0.00067 | V/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00134 0.00194 0.00194 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00055 0.00063 0.00073 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 0.00067 0.00078 0.00084 | V/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 | | Z/C 0.00017 0.00035 0.00053 0.00053 0.00098 0.00134 0.00149 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 | |
| | 7/C 0.00017 0.00024 0.00034 0.00038 0.00055 0.00055 0.00065 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 0.00067 0.00067 0.00078 0.00084 | V/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00149 0.00292 0.00337 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 | |
| | 0.00017 0.00017 0.00024 0.00034 0.00038 0.00045 0.00055 0.00063 0.00073 0.00086 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00060 0.00067 0.00078 0.00078 0.00084 | STATIC)=-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 | | Z/C 0.00017 0.00035 0.00053 0.00053 0.00098 0.00134 0.00194 0.00194 0.00292 0.00357 0.00390 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9484 0.9755 0.9924 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00063 0.00063 0.00073 0.00086 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 | | Z/C 0.00023 0.00036 0.00036 0.00051 0.00060 0.00067 0.00078 0.00078 0.00084 0.00091 0.00103 | V/UP 0.5402 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00134 0.00149 0.00194 0.00292 0.00390 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00053 0.00063 0.00073 0.00086 0.00094 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 0.00078 0.00084 0.00091 0.00103 0.00113 | V/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 | | Z/C 0.00017 0.00035 0.00053 0.00053 0.00098 0.00134 0.00194 0.00194 0.00292 0.00357 0.00390 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8201 0.8679 0.9097 0.9097 | |
| | 7/C 0.00017 0.00024 0.00034 0.00038 0.00055 0.00055 0.00065 0.00073 0.00073 0.00094 0.00129 0.00129 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 0.00067 0.00078 0.00091 0.00103 0.00121 0.00153 | STATIC) == 0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7759 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00055 0.00055 0.00073 0.00073 0.00073 0.00094 0.00129 0.00129 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.8832 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 0.00067 0.00078 0.00084 0.00091 0.00103 0.00121 0.00153 0.00121 0.00237 | V/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8589 0.8589 0.8784 0.9024 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00149 0.00292 0.00337 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8201 0.8679 0.9097 0.9097 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00053 0.00063 0.00073 0.00086 0.00094 0.00129 0.00129 0.00156 0.00194 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 | | Z/C 0.00023 0.00036 0.00036 0.00051 0.00067 0.00067 0.00084 0.00084 0.00091 0.00103 0.00121 0.00153 0.00185 0.00211 | STATIC) =-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8589 0.8784 0.9024 0.9434 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | Z/C 0.00017 0.00024 0.00034 0.00035 0.00045 0.00055 0.00063 0.00073 0.00073 0.00094 0.00129 0.00129 0.00146 0.00129 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.8832 | | Z/C 0.00023 0.00030 0.00036 0.00051 0.00067 0.00078 0.00084 0.00091 0.00103 0.00121 0.00153 0.00153 0.00211 0.00237 | V/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8589 0.8589 0.8784 0.9024 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00055 0.00055 0.00073 0.00073 0.00073 0.00074 0.00196 0.00196 0.00196 0.00196 0.00196 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.8832 | | Z/C 0.00023 0.00036 0.00036 0.00051 0.00060 0.00067 0.00078 0.00084 0.00091 0.00113 0.00123 0.00185 0.00211 0.00237 | STATIC) =-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8589 0.8784 0.9024 0.9434 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00063 0.00063 0.00073 0.00094 0.00129 0.00129 0.00129 0.00156 0.00194 0.00156 0.00156 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.67372 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.8832 0.9028 | | Z/C 0.00023 0.00036 0.00051 0.00060 0.00067 0.00078 0.00084 0.00091 0.00113 0.00121 0.00153 0.00121 0.00185 0.00211 0.00290 0.00290 | V/UP 0.5402 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8214 0.8589 0.8784 0.9024 0.9024 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00073 0.00063 0.00063 0.00094 0.00129 0.00129 0.00129 0.00129 0.00129 0.00129 0.00129 0.00129 0.00129 0.00129 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.48608 0.8832 0.9028 | | Z/C 0.00023 0.00036 0.00051 0.00067 0.00067 0.00084 0.00084 0.00091 0.00100 0.00113 0.00121 0.00153 0.00121 0.0027 0.00284 | STATIC)=-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7045 0.7045 0.7753 0.7859 0.8214 0.8589 0.8214 0.8589 0.9024 0.9434 0.9761 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00430 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 0.00024 0.00034 0.00034 0.00038 0.00038 0.00055 0.00055 0.00073 0.00073 0.00073 0.00074 0.00129 0.00129 0.00129 0.00126 0.00265 0.00265 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.9608 0.9608 | | Z/C 0.00023 0.00036 0.00036 0.00051 0.00060 0.00067 0.00078 0.00084 0.00091 0.00113 0.00121 0.00153 0.00185 0.00211 0.00290 0.00341 0.00399 0.00341 | STATIC) =-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7645 0.8589 0.8589 0.8784 0.9924 0.9434 0.9761 0.9984 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00479 0.00479 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00055 0.00053 0.00073 0.00073 0.00094 0.00129 0.00129 0.00129 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 0.00126 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.8832 0.9028 0.9216 0.9602 0.9841 0.9933 | | Z/C 0.00023 0.00036 0.00051 0.00060 0.00068 0.00078 0.00084 0.00091 0.00113 0.00121 0.00185 0.00211 0.00237 0.00237 0.00237 0.00299 0.00454 0.00459 | STATIC)=-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8214 0.8589 0.8784 0.9024 0.9761 0.9927 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00479 0.00479 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00034 0.00038 0.00045 0.00053 0.00063 0.00063 0.00073 0.00086 0.00129 0.00129 0.00129 0.00156 0.00129 0.00218 0.00218 0.00218 0.00240 0.00365 0.00365 0.00365 0.00365 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.4608 0.8832 0.9028 0.9216 0.9602 0.9841 0.9933 0.9973 0.9998 | | Z/C 0.00023 0.00036 0.00051 0.00060 0.00067 0.00068 0.00013 0.00113 0.00121 0.00153 0.00121 0.00185 0.00211 0.00290 0.00399 0.00454 0.00399 0.00454 0.00499 0.00569 | STATIC)=-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7645 0.7753 0.7859 0.8214 0.8589 0.8784 0.9024 0.9434 0.9024 0.9927 0.9987 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00479 0.00479 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00045 0.00063 0.00063 0.00063 0.00073 0.00086 0.00129 0.00129 0.00129 0.00186 0.00129 0.00186 0.00129 0.00186 0.00189 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.8608 0.8832 0.9028 0.9216 0.9602 0.9841 0.9933 0.9973 0.9997 | | Z/C 0.00023 0.00036 0.00051 0.00067 0.00067 0.00078 0.00084 0.000113 0.00121 0.00153 0.00185 0.00211 0.00237 0.00290 0.00341 0.00399 0.00454 0.00499 0.00569 | STATIC) =-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7045 0.7753 0.7753 0.7753 0.8589 0.8589 0.8784 0.9024 0.9434 0.9761 0.9997 0.9998 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00479 0.00479 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |
| | 2/C 0.00017 0.00024 0.00034 0.00038 0.00055 0.00053 0.00073 0.00073 0.00094 0.00106 0.00129 0.00146 0.00156 0.00194 0.00146 0.00156 0.00194 0.00146 0.00156 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 0.00189 | U/UP 0.4893 0.5565 0.6074 0.6324 0.6522 0.6810 0.6959 0.7176 0.7372 0.7468 0.7585 0.7901 0.8097 0.8223 0.4608 0.8832 0.9028 0.9216 0.9602 0.9841 0.9933 0.9973 0.9998 | | Z/C 0.00023 0.00036 0.00051 0.00067 0.00067 0.00078 0.00084 0.000113 0.00121 0.00153 0.00185 0.00211 0.00237 0.00290 0.00341 0.00399 0.00454 0.00499 0.00569 | STATIC) =-0.5 U/UP 0.5492 0.5996 0.6331 0.6754 0.6934 0.7139 0.7252 0.7441 0.7515 0.7045 0.7753 0.7753 0.7753 0.8589 0.8589 0.8784 0.9024 0.9434 0.9761 0.9997 0.9998 | | Z/C 0.00017 0.00035 0.00053 0.00071 0.00098 0.00149 0.00149 0.00194 0.00292 0.00357 0.00397 0.00390 0.00479 0.00479 | V/UP 0.5063 0.6414 0.6853 0.7195 0.7556 0.8029 0.8201 0.8679 0.9097 0.9097 0.9484 0.97755 0.9924 0.9979 | |

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

| X/C= 0.319 | Y/C= 1.15 | UPPER X/C= 0.319 | Y/C= 1.98 | UPPER X/C= 0.319 | Y/C= 2.40 UPF |
|------------|----------------|------------------|---------------|------------------|------------------|
| ONSTANT CP | STATIC) =-1.11 | O CONSTANT CP | STATIC) =-1.1 | 10 CONSTANT CP | (STATIC) =-1.110 |
| 2/C | U/UP | 2/0 | U/UP | 2/0 | U/UP |
| 0.00012 | 0.4724 | 0.00022 | 0.5609 | 0.00033 | 0.6455 |
| 0.00038 | 0.6382 | 0.00027 | 0.6040 | 0.00072 | 0.7100 |
| 0.00059 | 0.6769 | 0.00035 | 0.6321 | 0.00085 | 0.7268 |
| 0.00070 | 0.6948 | 0.00050 | 0.6678 | 0.00140 | 0.7775 |
| 0.00109 | 0.7442 | 0.00062 | 0.6402 | 0.00195 | 0.8145 |
| 0.00128 | 0.7660 | 0.00068 | 0.6975 | 0.00252 | 0.8494 |
| 0.00150 | 0.7838 | 0.00080 | 0.7066 | 0.00301 | 0.8791 |
| 0.00173 | 0.8013 | 0.00090 | 0.7201 | 0.00354 | 0.9068 |
| 0.00230 | 0.8414 | 0.00098 | 0.7239 | 0.00397 | 0.9287 |
| 0.00275 | 0.8705 | 0.00110 | 0.7348 | 0.00454 | 0.9517 |
| 0.00305 | 0.8916 | 0.00121 | 0.7433 | 0.00505 | 0.9718 |
| 0.00346 | 0.9082 | 0.00128 | 0.7498 | 0.00552 | 0.9638 |
| 0.09401 | 0.9326 | 0.00156 | 0.7778 | 0.00588 | 0.9913 |
| 0.00450 | 0.9535 | 0.00189 | 0.8042 | 0.00623 | 0.9955 |
| 0.00487 | 0.9664 | 0.00214 | 0.8178 | 0.00653 | 0.9979 |
| 0.00532 | 0.9792 | 0.00242 | 0.8388 | 0.00699 | 0.9991 |
| 0.00566 | 0.9862 | 0.00293 | 0.8692 | 0.00726 | 0.9996 |
| 0.00600 | 0.9924 | 0.00345 | 0.8961 | 0.00760 | 0.9995 |
| 0.00649 | 0.9970 | 0.00400 | 0,9225 | 0.00794 | 1.0001 |
| 0.00685 | 0.9990 | 0.00454 | 0.9468 | 0.00835 | 0.9998 |
| 0.00710 | 0.9993 | 0.00510 | 0.9664 | 0.00887 | 1.0001 |
| 0.00760 | 1.0000 | 0.00572 | 0.9846 | 0.00929 | 1.0000 |
| 0.00800 | 1.0000 | 0.00612 | 0.9915 | 0.707-2 | |
| | | 0.00650 | 0.9958 | | |
| | | 0.00698 | 0.9985 | | |
| | | 0.00743 | 0.9997 | | |
| | | 0.00780 | 0.9794 | | |
| | | 0.00780 | 1.0001 | | |
| | | 0.00861 | 1.0000 | | |

| X/C= | 0.4 |) 4 | Y/C= | 1 . | 20 | UPPER |
|--------|-----|------|------|-----|----|-------|
| CONSTA | NT | CP(S | TAT | () | -1 | 148 |

| Z/C | U/UP |
|---------|--------|
| 0.60019 | 0.5186 |
| 0.00031 | 0.5920 |
| 0.00059 | 0.6421 |
| 0.00068 | 0.6683 |
| 0.00084 | 0.6900 |
| 0.00092 | 0.7056 |
| 0.00116 | 0.7196 |
| 0.00128 | 0.7333 |
| 0.00140 | 0.7435 |
| 0.00152 | 0.7543 |
| 0.00168 | 0.7645 |
| 0.00188 | 0.7793 |
| 0.00205 | 0.7891 |
| 0.00220 | 0.8041 |
| 0.00242 | 0.8159 |
| 0.00254 | 0.8238 |
| 0.00277 | 0.8330 |
| 0.00318 | 0.8545 |
| 0.00346 | 0.8682 |
| 0.00362 | 0.8780 |
| 0.00422 | 0.9054 |
| 0.00462 | 0.9243 |
| 0.00506 | 0.9406 |
| 0.00543 | 0.9552 |
| 0.00650 | 0.9816 |
| 0.00741 | 0.9979 |
| 0.00797 | 0.9988 |
| 0.00858 | 0.9999 |
| 0.00938 | 1.0000 |
| 0.01025 | 1.0000 |

X/C= 0.404 Y/C= 2.45 UPPER

CONSTANT CP(STATIC) =- 1.148

| 2/ | C | U/UP |
|--------|----|--------|
| 0.000 | 18 | 0.520 |
| 0.000 | 38 | 0.6309 |
| 0.000 | 42 | 0.6424 |
| 0.0000 | 52 | 0.6925 |
| 0.001 | 19 | 0.7258 |
| 0.0015 | 51 | 0.7482 |
| 0.0018 | 32 | 0.7730 |
| 0.0022 | 25 | 0.7998 |
| 0.0029 | 0 | 0.8362 |
| 0.0031 | 8 | 0.8530 |
| 0.0037 | 75 | 0.8925 |
| 0.0046 | 57 | 0.9284 |
| 0.0057 | 7 | 0.9614 |
| 0.0065 | 5 | 0.9832 |
| 0.0075 | 52 | 0.9955 |
| 0.0082 | 25 | 0.9988 |
| 0.0090 | 5 | 1.0000 |
| 0.0108 | 11 | 1.0000 |
| | | |

Table 6.8 (continued)

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

| | Y/C= 1.34 | UPPER | X/C= 0.498 | 1/L# 2.1/ UP | PER X/C= 0.498 | Y/C= 2.50 UPP |
|-----------|--------------|-------|-------------|-----------------|----------------|-----------------|
| NSTANT CP | (STATIC)=-1. | 202 | CONSTANT CP | STATIC) =-1.202 | CONSTANT CP | STATIC) =-1.202 |
| Z/C | U/UP | | 2/0 | U/UP | 2/0 | U/UP |
| 0.00020 | 0.4756 | | 0.00037 | 0.5723 | 0.00031 | 0.5791 |
| 0.00028 | 0.5886 | | 0.00046 | 0.6244 | 0.00036 | 0.5941 |
| 0,00036 | 0.6276 | | 0.00075 | 0.6551 | 0.00038 | 0.6095 |
| 0.00055 | 0.6525 | | 0.00085 | 0.6898 | 0.00041 | 0.6260 |
| 0.00068 | 0.6693 | | 0.00098 | 0.6921 | 0.00043 | 0.6416 |
| 0.00087 | 0.6818 | | 0.00126 | 0.7144 | 0.00048 | 0.6540 |
| 0.00095 | 0.6944 | | 0.00132 | 0.7239 | 0.00053 | 0.6646 |
| 0.00115 | 0.7029 | | 0.00145 | 0.7387 | 0.00057 | 0.6689 |
| 0.00123 | 0.7124 | | 0.00160 | 0.7470 | | |
| 0.00135 | 0.7214 | | 0.00175 | 0.7594 | 0.00076 | 0.6946 |
| 0.00155 | 0.7345 | | 0.00185 | 0.7632 | 0.00079 | 0.6985 |
| 0.00175 | 0.7433 | | 0.00200 | 0.7728 | 0.00119 | 0.7177 |
| 0.00198 | 0.7591 | | 0.00217 | 0.7804 | 0.00124 | 0.7243 |
| 0.00218 | 0.7706 | | 0.00228 | | 0.00159 | 0.7462 |
| 0.00225 | 0.7764 | | | 0.7877 | 0.00180 | 0.7599 |
| 0.00249 | 0.7848 | | 0.00270 | 0.8130 | 0.00200 | 0.7790 |
| 47500.0 | 0.8075 | | 0.00312 | 0.8394 | 0.00238 | 0.7476 |
| 0.00313 | 0.8215 | | 0.00352 | 0.8530 | 0.00297 | 0.8233 |
| 0.00329 | 0.8302 | | 0.00388 | 0.8729 | 0.00324 | 0.8370 |
| 0.00406 | 0.8591 | | 0.00463 | 0.9015 | 0.00387 | 0.8676 |
| 0.00441 | 0.8755 | | 0.00545 | 0.9291 | 0.00465 | 0.8933 |
| 0.00475 | 0.8885 | | 0.00633 | 0.9529 | 0.00553 | 0.9214 |
| 0.00510 | 0.9016 | | 0.00717 | 0.9734 | 0.00621 | 0.9455 |
| 0.00605 | 0.9333 | | 0.00793 | 0.9869 | 0.00696 | 0.9681 |
| 0.00679 | 0.9540 | | 0.00885 | 0.9964 | 0.00760 | 0.9805 |
| 0.00735 | 0.9673 | | 0.00937 | 0.9980 | 0.00832 | 0.9911 |
| | | | 0.01005 | 0.9993 | 0,00896 | 0.9974 |
| 0.00787 | 0.9777 | | 0.01073 | 0.9996 | 0.00974 | 0.9987 |
| 0.00858 | 0.9894 | | 0.01150 | 1.0000 | 0.01024 | 0.9988 |
| 0.00937 | 0.9956 | | | | 0.01136 | 1.0000 |
| 0.00999 | 0.9974 | | | | 0.01198 | 1.0001 |
| 0.01058 | 0.9987 | | | | 0.01239 | 1.0000 |
| 0.01093 | 0.9993 | | | | | |
| 0.01150 | 0.9992 | | | | | |
| 0.01231 | 0.9986 | | | | | |
| 0.01277 | 1.0000 | | | | | |
| 0.01321 | 0.9995 | | | | | |
| 0.01392 | 1.0000 | | | | | |
| | | | | | | |

| Z/C | | |
|----------|----------|---------|
| U.000Z | 3 0.2044 | -0.6600 |
| 0.0064 | 0 0.2163 | -0.6600 |
| 0.0005 | 3 0.2216 | -0.6600 |
| 0.0006 | 5 0.2289 | -0.6600 |
| 0.0009 | 5 0.2517 | -0.6600 |
| 0.0011 | 1 0.2665 | -0.8600 |
| 0.0012 | 3 0:2784 | -0.6600 |
| 0.0019 | 0 0.3323 | -0.6600 |
| 0.0022. | 3 0.3582 | -0.6600 |
| 0.0025 | 3 0.3882 | -0.6600 |
| 0.0031 | 0 0.4376 | -0.6600 |
| 0.0037 | 4 9.4870 | -0.6600 |
| 0.0041 | 1 0.5388 | -0.6600 |
| 0.0045 | 8 0.5663 | -0.6600 |
| 0.9051 | 0 0.5145 | -0.6593 |
| 0.0061 | 3 0.7089 | -0.6517 |
| 0.0066 | 3 0.7358 | -0.6480 |
| 0. 1.070 | 0 0.7675 | -0.6453 |
| 0.0074 | 7 0.7903 | -0.0418 |
| 0.0080 | 9 0.8371 | -0.6372 |
| 0.0084 | 5 0.8545 | -0.6346 |
| 0.0087 | 3 0.8825 | -0.6325 |
| 0.0093 | 3 0.9056 | -0.6280 |
| 0.0098 | 8 0.9258 | -0.6240 |
| 0.0101 | 9 0.9412 | -0.6217 |
| 0.0105 | 3 0.9482 | -0.6192 |
| 0.0109 | 2 0.9573 | -0.6163 |
| 0.0114 | 0 0.9736 | -0.6128 |
| 0.0117 | 9 0.9827 | -0.6099 |
| 0.0123 | 4 0.9891 | -0.6059 |
| 0.0128 | | |
| 0.0131 | 2 0.9908 | -0.6001 |
| 0.0137 | 8 0.9922 | |
| 0.9150 | | -0.5857 |

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

| X/C= 0.6 | 50 Y/C= 2.60 | UPPER | X/C= 0.750 | Y/C= 2.21 | UPPER | X/C= 0.900 | Y/C= 2.43 | UPPER |
|----------|--------------|-----------|-------------|--------------|-------|------------|-----------|------------|
| 2/0 | U/UP (| P(STATIC) | CONSTANT CP | STATIC)==U.Z | 720 | 2/0 | U/UP | CP(STATIC) |
| 0.0006 | 1 0.2061 | -0.4400 | | | | 0.00057 | 0.1878 | -0.0473 |
| 0.0009 | 0 0.2392 | -0.4400 | 2/C | U/UP | | 0.00239 | 0.2382 | -0.0527 |
| 0.0012 | 9 0.2383 | -0.4400 | 0.00057 | 0.1992 | | 0.00625 | 0.2995 | -0.0606 |
| 0.0015 | 8 0.2649 | -0.4400 | 0.00105 | 0.1449 | | 0.00782 | 0.3376 | -0.0614 |
| 0.0017 | 8 0.2678 | -0.4400 | 0.00154 | 0.2161 | | 0.00942 | 0.3915 | -0.0622 |
| 0.0021 | 7 0.3025 | -0.4400 | 0.00203 | 0.2190 | | 0.01195 | 0.4405 | -0.0635 |
| 0.0024 | 6 0.3256 | -0.4400 | 0.00217 | 0.21/5 | | 0.01425 | 0.4997 | -0.0647 |
| 0.0026 | 5 0.3344 | -0.4400 | 0.00258 | 0.2359 | | 0.01633 | 0.5432 | -0.0658 |
| 0.0028 | 5 0.3911 | -0.4400 | 0.00286 | 0.2469 | | 0.01845 | 0.5359 | -0.0669 |
| 0.0032 | | -0.4400 | 0.00335 | 0.2574 | | 0.02048 | 0.6434 | -0.0680 |
| 0.0036 | 2 0.3373 | -0.4400 | 0.00369 | 0.2578 | | 0.02190 | 0.6745 | -0.0687 |
| 0.0038 | 1 0.3738 | -0.4400 | 0.00554 | 0.2860 | | 0.07346 | 0.7003 | -0.0695 |
| 0.0041 | 0 0.4134 | -0.4400 | 0.00723 | 0.3324 | | 0.02478 | 0.7389 | -0.0702 |
| 0.0043 | 9 0.3885 | -0.4400 | 0.00886 | 0.3711 | | 0.02752 | 0.7998 | -0.0716 |
| 0.0045 | 8 0.3757 | -0.4400 | 0.01037 | 0.4373 | | 0.02791 | 0.8062 | -0.0718 |
| 0.0048 | 7 0.4106 | -0.4400 | 0.01138 | 0.4724 | | 0.02845 | 0.8198 | -0.0721 |
| 0.0051 | 6 0.4258 | -0.4400 | 0.01194 | 0.5082 | | 0.02905 | 0.8299 | -0.0724 |
| 0.0054 | 5 0.4364 | -0.4400 | 0.01375 | 0.5894 | | 0.02965 | 0.8304 | -0.0727 |
| 0.0055 | 4 0.4418 | -0.4400 | 0.01572 | 0.6868 | | 0.03122 | 0.8676 | -0.0735 |
| 0.0058 | 3 0.4879 | -0.4400 | 0.01763 | 0.7648 | | 0.03249 | 0.9064 | -0.0742 |
| 0.0060 | 2 0.4746 | -0.4400 | 0.01950 | 0.8304 | | 0.03350 | 0.9226 | -0.0747 |
| 0.0064 | 0 0.4740 | -0.4400 | 0.02128 | 0.9069 | | 0.03472 | 0.9347 | -0.0754 |
| 0.0085 | | -0.4400 | 0.02242 | 0.9379 | | 0.03587 | 0.9493 | -0.0760 |
| 0.0106 | 4 0.5969 | -0.4400 | 0.02366 | 0.9597 | | 0.03659 | 0.9524 | -0.0763 |
| 0.0127 | | -0.4400 | 0.02483 | 0.9823 | | 0.03758 | 0.9698 | -0.0769 |
| 0.0147 | 9 0.7303 | -0.4378 | 0.02616 | 0.9882 | | 0.03891 | 0.9755 | -0.0775 |
| 0.0168 | | -0.4356 | 0.02688 | 0.9964 | | 0.04038 | 0.9867 | -0.0783 |
| 0.0190 | | -0.4332 | 0.02718 | 0.4974 | | 0.04151 | 0.9847 | -0.0789 |
| 0.0215 | | -0.4306 | 0.02759 | 0.9987 | | 0.04297 | 0.9937 | -0.0796 |
| 0.0238 | | -0.4280 | 0.02806 | 0.9992 | | 0.04441 | 0.9995 | -0.0804 |
| 0.0261 | | -0.4270 | 0.02858 | 0.9989 | | 0.04595 | 1.0002 | -0.0812 |
| 0.0282 | | -0.4270 | 0.02988 | 0.9997 | | 0.04735 | 1.0000 | -0.0819 |
| 0.0293 | | -0.4270 | 0.03095 | 0.9999 | | 0.04801 | 0.9997 | -0.0823 |
| 0.0305 | 8 1.0000 | -0.4270 | 0.03171 | 1.0000 | | 0.04853 | 0.9991 | -0.0825 |
| | | | | | | 0.04899 | 1.0000 | -0.0828 |
| | | | | | | 0.44970 | 1.0001 | -0.0831 |
| | | | | | | 0.05062 | 1.0000 | -0.9836 |
| | | | | | | | | |

Table 6.8 (continued)

CASE 13 PROBES D (concluded)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 1.025 Y/L= 2.82 WAKE

| Z/C | U/UP | CP(STATIC) |
|----------------------|------------|------------|
| -0.02515 | 1.0000 | 0.1130 |
| | Incomplete | |
| -0.02047 | 0.9435 | 0,1112 |
| -0.01945 | 0.9000 | 0.1107 |
| -0.01670 | 0.8086 | 0.1095 |
| -0.01567 | 0.8593 | 0.1091 |
| -0.01420 | 0.8435 | 0.1084 |
| -0.01412 | 0.8342 | 0.1084 |
| -0.01205 | 0.7943 | 0.1075 |
| -0.0109,6 | 0.7785 | 0 1070 |
| -0.00971 -0.00838 | 0.7393 | 0.1065 |
| -0.00713 | 0.6786 | 0.1054 |
| -0.00619 | 0.5953 | 0.1050 |
| -0.00560 | 0.5272 | 0.1047 |
| -0.00484 | 0.4696 | 0.1044 |
| -0.00167 | 0.2801 | 0.1032 |
| 0.00031 | 0.2711 | 0 1023 |
| 0.00214 | 0.3045 | 0.1009 |
| 0.00391 | 0.3416 | 0.0993 |
| 0.00722 | 0.3865 | 0.0962 |
| 0.00875 | 0.4217 | 0.0948 |
| 0.00987 | 0.4563 | 0.0937 |
| 0.01188 | 0.4995 | 0.0919 |
| 0.01318 | 0.5397 | 0.0907 |
| 0.01430 | 0.5618 | 0.0896 |
| 0.01762 | 0.5922 | 0.0881 |
| 0.01832 | 0.6431 | 0.0859 |
| 0.01894 | 0.6581 | 0.0853 |
| 0.01941 | 0.6643 | 0.0849 |
| 0.02080 | 0.6844 | 0.0836 |
| 0.02275 | 0.7336 | 0.0817 |
| 0.02426 | 0.7593 | 0.0803 |
| 0.02723 | 0.7991 | 0.0776 |
| 0.02927 | 0.8582 | 0.0757 |
| 0.03129 | 0.8970 | 0.0738 |
| 0.03535 0.03537 | 0.9255 | 0.0719 |
| 0.03724 | 0.9655 | 0.0683 |
| 0.03874 | 0.9792 | 0.0669 |
| 0.04034 | 0.9849 | 0.0638 |
| 0.04368 | 0.9965 | 0.0623 |
| 0.04537 | 1.0000 | 0.0607 |
| U. 04562 | 1.0008 | 0.0605 |
| 0.04575 | 1.0015 | 0.0603 |
| 0.04588 | 1.0004 | 0.0602 |
| 0.04026 | 1.0008 | 0.0599 |
| 0.114639 | 1.0001 | 0.0597 |
| 0.04657 | 0.9995 | 0.6596 |
| 0.04670 | 1.0012 | 0.0595 |
| 0,04708 | 1.0000 | 0.0591 |
| 0.04727 | 0.4995 | 0.0589 |
| 0.04752 | 0.9996 | 0.0587 |
| 0.74820 | 1.0002 | 0.0581 |
| 0.04832 | 1.0002 | 0.0579 |
| 0.04845 | 1.0000 | 0.0578 |
| | | |

BOUNDARY LAYER AND WAKE PROFILES

CASE 13A PROBES C2

M= 0.740 ALPHA= 3.19 RE= 2700000.

| X/C= 0.152 Y/C= 1.17 LOWER | X/C= 0.179 Y/C= 1.04 UP | PER |
|---|----------------------------------|------|
| CONSTANT CP(STATIC) = 0.000 | CONSTANT CP(STATIC) =-1.038 | |
| Z/C U/UP | Z/C U/UP | |
| 0.00018 0.6065 | 0.00017 0.4915 | |
| 0.00032 0.7205 | 0.00038 0.5995 0.00044 0.6444 | |
| 0.00040 0.7587 0.00048 0.7908 | 0.00055 0.6772 | |
| 0.00065 0.8269 | 0.00067 0.6992 | |
| 0.00079 0.8618 | 0.00084 0.7220 | |
| 0.00087 0.8712 0.00099 0.8872 | 0.00118 0.7669 0.00137 0.7993 | |
| 0.00099 0.8872 0.00112 0.9060 | 0.00166 0.8236 | |
| 0.00125 0.9253 | 0.00193 0.8491 | |
| 0.00158 0.9626 | 0.00193 0.8599 0.00209 0.8713 | |
| 0.00178 0.9757 0.00202 0.9888 | 0.00209 0.8713 0.00235 0.8930 | |
| 0.00222 0.9939 | 0.00256 0.9156 | |
| 0.00222 0.9939 | 0.00279 0.9358 | |
| 0.00242 0.9970 0.00268 0.9994 | 0.00302 0.9505 0.00325 0.9647 | |
| 0.00290 0.9996 | 0.00340 0.9719 | |
| 0.00312 1.0000 | 0.00364 0.9800 | |
| 0.00334 1.0000 | 0.00385 0.9882 | |
| | 0.00406 0.9940 0.00426 0.9964 | |
| | 0.00446 0.9982 | |
| | 0.00457 0.9993 | |
| | 0.00488 0.9997 0.00514 1.0003 | |
| | 0.00563 1.0001 | |
| | 0.00593 1.0000 | |
| X/C= 0.404 Y/C= 1.20 UPPER CONSTANT CP(STATIC)=-1.172 | X/C= 0.498 Y/C= 1.34 UI | PPER |
| CONSTANT C- (3) ATTC/- 1,172 | CONSTANT CPCSTATE()1.232 | |
| Z/C U/UP | Z/C U/UP | |
| 0.00043 0.6158 0.00055 0.6638 | 0.00032 0.5642 0.00047 0.6246 | |
| 0.00063 0.6789 | 0.00055 0.6436 | |
| 0.00084 0.6942 | 0.00083 0.6589 | |
| 0.00108 0.7176 0.00144 0.7543 | 0.00091 0.6812 0.00122 0.7159 | |
| 0.00148 0.7555 | 0.00136 0.7225 | |
| 0.00172 0.7754 | 0.00149 0.7387 | |
| 0.00200 0.7890 0.00225 0.8061 | 0.00166 0.7500 0.00210 0.7663 | |
| 0.00289 0.8417 | 0.00269 0.7991 | |
| 0.00323 0.8620 | 0.00304 0.8193 | |
| 0.00366 0.8826 0.00394 0.9012 | 0.00349 0.8374 | |
| 0.00398 0.9035 | 0.00391 0.8569 0.00391 0.8589 | |
| 0.00426 0.9138 | 0.00421 0.8682 | |
| 0.00478 0.9331 0.00511 0.9483 | 0.00463 0.8824 | |
| 0.00511 0.9483 0.00552 0.9634 | 0.00485 0.8456 0.00519 0.9106 | |
| 0.00596 0.9752 | 0.00556 0.9237 | |
| 0.00640 0.9843 | 0.00599 0.9377 | |
| 0.00667 0.9874 0.00721 0.9929 | 0.00621 0.9422 0.00658 0.9523 | |
| 0.00753 0.9963 | 0.00685 0.9613 | |
| 0.00793 0.9985 | 0.00723 0.9499 | |
| 0.00830 0.9991 0.00862 0.9995 | 0.00750 0.9756 0.00782 0.9805 | |
| 0.00862 0.9995 0.00882 0.9999 | 0.00804 0.9844 | |
| 0.00934 1.0001 | 0.00849 0.9901 | |
| 0.00983 1.0000 | 0.00894 0.9942 | |
| | 0.00978 0.9980 0.01016 0.9988 | |
| | 0.01016 0.9986 | |
| | 0.01078 0.9993 | |
| | 0.01151 1.0000 0.01216 0.9996 | |
| | 0.01386 1.0000 | |
| | | |

Table 6.8 (concluded)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13A PROBES C2 (concluded)

M= 0.740 ALPHA= 3.19 RE= 2700000.

| 1.0000 | | | M= 0,740 ALPH | A= 3.19 RE= 27000 | 00. | |
|--|--------------|-----------------------|---|-------------------|-------------|---------------------------------------|
| 1/2 | X/C= 0.650 | Y/C= 2.60 UP | PER X/C= 0.750 | Y/C= 2.21 UPPER | X/C= 0.900 | Y/C= 2.43 UPPER |
| 1/2 | | | CONC. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | |
| 0,00083 0,3512 0,00087 0,2799 0,00080 0,2196 0,00112 0,2224 0,00105 0,30112 0,2224 0,00105 0,3017 0,00105 0,3017 0,00112 0,2224 0,00105 0,3017 0,00112 0,2224 0,00105 0,3017 0,00105 0,3017 0,00112 0,2224 0,00105 0,3017 0,00105 0,3017 0,00105 0,3017 0,00105 0,3017 0,00105 0,3017 0,00105 0,3017 0,00113 0,2407 0,00105 0,3017 0,00113 0,0 | CONSTANT CPC | STATIC) =-0.450 | CONSTANT CPCS | TATIC) =-0.275 | CONSTANT CP | STATIC) =-0.034 |
| 0.00083 | Z/C | U/UP | 2/0 | U/Up | 2/0 | U/UP |
| 0,00205 0,1377 0,0075 0,3070 0,00151 0,2407 0,00151 0,0025 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,2607 0,00301 0,00301 0,00301 0,2607 0,00301 | | | | 0.2729 | 0.00080 | |
| 0.00404 0.4753 0.00245 0.3360 0.00381 0.2827 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3099 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.3090 0.00690 0.4413 0.0060 0.0060 0.3090 0.0060 0.4413 0.0060 0.4413 0.0060 0.0060 0.3090 0.0060 0.4413 0.0060 0.4414 0.4413 0.0060 0.4414 0.4413 0.0060 0.4414 0.4413 0.0060 0.4414 | | | | | | |
| 0.00867 0.55867 0.00867 0.00870 0.3390 0.00859 0.3499 0.00868 0.4574 0.00867 0.3463 0.00813 0.40818 0.00864 0.4574 0.00867 0.00867 0.3463 0.00813 0.40818 0.00864 0.45773 0.00867 0.3463 0.00813 0.40818 0.00864 0.4581 0.4581 0.00864 0.4581 0 | | | | | | |
| 0.00886 0.6374 0.00307 0.3443 0.00813 0.4038 0.4038 0.00813 0.4038 0.00864 0.7737 0.0097 0.3554 0.00945 0.4518 0.00945 0.00945 0.4518 0.00945 | | | | | | |
| 0,01025 0,81817 0,00074 0,4117 0,00045 0,4432 0,01082 0,01082 0,4613 0,01082 0 | 0.00686 | | 0.00307 | | 0.00813 | |
| 0.01034 | | | | | | |
| 0.01168 0.0003 0.0003 0.00097 0.5913 0.01318 0.5446 0.01517 0.9755 0.9755 0.9755 0.01089 0.4536 0.01517 0.9759 0.01089 0.4536 0.01517 0.9759 0.01089 0.4539 0.01647 0.6485 0.001647 0.6485 0.001647 0.0486 0.01210 0.6443 0.01861 0.01 | | | | | | |
| 0.01357 0.9745 0.9059 0.01389 0.4356 0.01479 0.5832 0.01587 0.9059 0.01587 0.9059 0.01687 0.9059 0.01687 0.9059 0.01687 0.9059 0.01687 0.9059 0.01687 0.9059 0.01687 0.9059 0.02066 1.0000 0.01815 0.9057 0.02066 1.0000 0.01815 0.9057 0.02066 1.0000 0.01815 0.9057 0.02066 1.0000 0.01815 0.9057 0.02066 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00795 0.02164 0.00797 0.02609 0.02164 0.00797 0.02609 0.02773 0.02609 0.9055 0.02773 0.02609 0.02773 0.02609 0.02773 0.02609 0.02773 0.00000 0.02773 0.0000 0.02773 0.0000 0.02773 0.0000 0.02773 0.0000 0.02773 0.0000 0.02773 0.00000 0.02773 0.00000 0.02773 0.00000 0. | | | | | | |
| 0.01525 0.0951 0.01210 0.6945 0.7971 0.01768 0.7921 0.01767 0.9964 0.7921 0.017671 0.9964 0.01572 0.7860 0.7521 0.02168 0.7921 0.02168 1.0000 0.01512 0.8252 0.8252 0.02148 0.7995 0.02048 0.0572 0.8252 0.02148 0.7995 0.02048 0.0572 0.02049 0.0573 0.02049 0.0573 0.02049 0.0573 0.02049 0.0573 0.02049 0.0573 0.02049 0.0773 0.02049 0.0973 0.02249 0.9951 0.02049 0.0973 0.02249 0.9951 0.02053 0.02749 0.05864 0.0275 0.02249 0.9951 0.02053 0.02749 0.05864 0.0275 0.02249 0.9951 0.02575 0.05864 0.02757 0.02068 0.02757 0.05864 0.05864 0.02757 0.05864 0.05864 0.02757 0.05864 0.058 | 0.01357 | | 0.01089 | | | |
| 0.01700 0.9964 0.01378 0.7760 0.02148 0.7921 0.01618 0.7903 0.02148 0.7903 0.0162 0.2046 1.0000 0.01815 0.9167 0.9085 0.02148 0.7903 0.02148 0.7903 0.02148 0.7903 0.02148 0.7903 0.02148 0.7903 0.02148 0.7903 0.02148 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.90931 0.02445 0.02450 0.02141 0.9027 0.022609 0.04143 0.022609 0.02143 0.022609 0.02143 0.022609 0.02143 0.022609 0.02143 0.022609 0.0226 | | | | | | |
| 0.01671 0.9998 0.01522 0.8252 0.02148 0.7995 0.02304 0.8799 0.02006 1.0000 0.01815 0.9167 0.9085 0.02304 0.8799 0.02181 1.0000 0.01815 0.9167 0.9085 0.02304 0.8799 0.02181 1.0000 0.01976 0.9085 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02445 0.8856 0.02777 0.04687 0.02737 0.04687 0.02737 0.04687 0.02737 0.04687 0.02737 0.04687 0.02737 0.04687 0.02737 0.04687 0.02737 0.04687 0.02737 0.02087 0.02337 0.9986 0.03377 0.02622 0.9995 0.03377 0.0308 0.0986 0.03579 0.02877 1.0000 0.03707 1.0000 0.03707 1.0000 0.03707 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 1.0000 0.04077 0.04087 0.02877 0.0408 0.02887 0.028887 0.028887 0.02888 0.02888 0.02888 0.02888 0.02888 0.0288 | | | | | | |
| 0.02046 1,0000 0.01815 0.9167 0.02304 0.8379 0.02101 1.0000 0.01713 0.0000 0.01713 0.0000 0.02111 0.9853 0.02445 0.8354 0.02777 0.02609 0.4173 0.02111 0.9853 0.02777 0.02609 0.4173 0.02753 0.02777 0.02609 0.4173 0.02753 0.02777 0.02609 0.4173 0.02753 0.02777 0.02753 0.02767 0.02753 0.0 | | | | | | |
| 0.02111 | | | | | | |
| | 0.02181 | 1.0000 | | | | |
| | | | | | | |
| 0.0236# 0.0995 0.03375 0.9961 | | | | | | |
| 0,07622 0,9995 | | | | | | |
| X/C= 1,000 Y/C= 2,02 MAKE | | | | 0.9995 | | |
| X/C= 1,000 Y/C= 2,02 WAKE | | | | | | |
| X/C= 1,000 Y/C= 2.02 WAKE | | | 0.02877 | 1.0000 | | |
| X/C= 1,000 Y/C= 2.02 WAKE X/C= 1,025 Y/C= 2.82 WAKE X/C= 2,000 Y/C= 1,50 WAKE CONSTANT CP(STATIC) = 0.0929 | | | | | | |
| CONSTANT CP(STATIC) = 0.0929 CONSTANT CP(STATIC) = 0.0929 CONSTANT CP(STATIC) = 0.0929 2/C 1/Up 2/C 2/C 1/Up | | | | | 0.04011 | |
| CONSTANT CP(STATIC) = 0.0929 CONSTANT CP(STATIC) = 0.0929 CONSTANT CP(STATIC) = 0.0929 2/C 1/Up 2/C 2/C 1/Up | | | | | | |
| CONSTANT CP(STATIC) = 0.0929 CONSTANT CP(STATIC) = 0.0929 CONSTANT CP(STATIC) = 0.0929 2/C 1/Up 2/C 2/C 1/Up | | | | 2 02 HAVE | X/C= 2.000 | Y/C= 1.50 WAKE |
| 1.0000 | X/C= 1.000 | 4/C= 5.05 W | X/C= 1.025 | Y/C= 2.02 WAKE | | |
| 2/C | CONSTANT CO | STATIC) = 0 0929 | CONSTANT CP | STATIC) = 0.0929 | | |
| -0.02647 0.9912 -0.035094 1.00600 -0.31842 0.9996 0.0325 -0.01875 0.9882 -0.02683 0.9982 -0.21062 0.9990 0.0215 -0.01698 0.9735 -0.02683 0.9982 -0.21062 0.9990 0.0215 -0.01698 0.9735 -0.02683 0.9982 -0.21062 0.9990 0.0215 -0.01698 0.9735 -0.02685 0.9982 -0.21062 0.9990 0.0215 -0.01698 0.9958 0.9058 0.0272 -0.01300 0.9154 -0.02267 0.99797 -0.14220 0.9986 0.0277 -0.01300 0.9154 -0.02267 0.99797 -0.14220 0.9986 0.0275 -0.01087 0.8784 -0.02059 0.9770 -0.15230 0.9983 0.0265 -0.00911 0.8408 -0.01778 0.99119 -0.10512 0.9983 0.0262 -0.00709 0.77824 -0.01543 0.8684 -0.0512 0.9983 0.0262 -0.00709 0.77824 -0.01543 0.8684 -0.0512 0.9986 0.0288 -0.00220 0.6588 -0.01778 0.9813 0.8251 -0.08521 0.9986 0.0268 -0.00202 0.6588 -0.01090 0.77851 -0.00572 0.9983 0.0324 -0.00338 0.1978 -0.00385 -0.0197 0.7890 -0.05882 0.9979 0.0215 0.00245 0.1703 -0.00857 0.7510 -0.08862 0.9979 0.0215 0.00245 0.1703 -0.00857 0.7510 -0.08862 0.9979 0.0215 0.00245 0.1703 -0.00857 0.7510 -0.04980 0.9970 0.0215 0.00245 0.1703 -0.00857 0.7510 -0.04980 0.9970 0.0215 0.00245 0.1703 -0.00857 0.7510 -0.00857 0.9970 0.0215 0.00385 0.3607 -0.03189 0.9929 0.0411 0.01559 0.4085 0.00022 0.3788 -0.01819 0.9962 0.0997 0.0215 0.0187 0.3369 0.9929 0.0411 0.0187 0.3369 0.9929 0.0411 0.0187 0.3369 0.9929 0.0411 0.0187 0.3369 0.9929 0.0411 0.0187 0.3464 -0.00959 0.9987 0.0211 0.0187 0.3646 0.00702 0.3178 -0.01854 0.9917 0.0185 0.00187 0.00022 0.3788 -0.0185 0.9917 0.0185 0.00187 0.00022 0.3788 -0.0185 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00180 0.00059 0.9989 0.00059 0.9989 0.00059 0.9989 0.00059 0.9989 0.00059 0.00059 0.9989 0.00059 0.0 | CONSTRUCT OF | 0,4.1,- 0, | | | | |
| -0.01875 0.9482 -0.02868 1.0000 -0.28660 0.9987 0.0285 -0.01698 0.9735 -0.02683 0.9982 -0.21660 0.9987 0.0275 -0.01477 0.9456 -0.0256 0.9919 -0.17677 0.9983 0.0272 -0.01300 0.9154 -0.02267 0.9797 -0.1253 0.9983 0.0272 -0.01087 0.8784 -0.02050 0.9470 -0.1253 0.9983 0.0263 -0.00710 0.8408 -0.01778 0.9119 -0.10512 0.9983 0.0263 -0.00709 0.7824 -0.01543 0.8684 -0.0577 0.9983 0.0263 -0.00709 0.7824 -0.01543 0.8684 -0.0577 0.9983 0.0263 -0.00240 0.7587 -0.01315 0.8251 -0.08572 0.9983 0.0263 -0.00240 0.6548 -0.01090 0.7851 -0.06572 0.9983 0.0264 -0.00038 0.1978 -0.01090 0.7850 -0.05862 0.9979 0.0215 0.00245 0.1703 -0.00857 0.7530 -0.04890 0.9970 0.0215 0.00245 0.1703 -0.00857 0.7530 -0.04989 0.9970 0.0215 0.00457 0.1880 -0.00857 0.7530 -0.04989 0.9970 0.0215 0.01242 0.3203 -0.00857 0.7530 -0.04989 0.9970 0.0215 0.01242 0.3203 -0.00857 0.7530 -0.04989 0.9970 0.0215 0.01242 0.3203 -0.00857 0.7530 -0.04989 0.9970 0.0215 0.01391 0.3362 -0.00881 0.3551 -0.02582 0.9997 0.0211 0.01559 0.4085 0.0002 0.3768 -0.03389 0.9099 0.0213 0.01570 0.4085 0.0002 0.3778 -0.02582 0.9997 0.0213 0.01571 0.4516 0.00178 0.3464 -0.00795 0.9880 0.0116 0.01762 0.5301 0.00352 0.3791 -0.01420 0.9546 0.0215 0.02190 0.5646 0.00702 0.4449 0.01418 0.9216 0.0559 0.02290 0.5646 0.00702 0.4449 0.001418 0.9226 0.0559 0.02290 0.5646 0.00702 0.4449 0.001418 0.9226 0.00559 0.02495 0.6249 0.00220 0.5831 0.00970 0.0042 0.03113 0.7859 0.0039 0.00550 0.0080 0.0073 0.03550 0.8877 0.00260 0.8333 0.00970 0.0080 0.02291 0.6323 0.00971 0.00426 0.0080 0.03550 0.8877 0.00260 0.8333 0.00970 0.0080 0.03550 0.8877 0.00260 0.0080 0.03550 0.8877 0.00260 0.0080 0.03550 0.8877 0.00980 0.00880 0.00973 0.0080 0.04375 0.9989 0.00348 0.00903 0.0080 | | | | | | |
| -0.01698 0.9735 -0.02683 0.9982 -0.21062 0.9990 0.0216 -0.01477 0.9456 -0.02264 0.9919 -0.17677 0.9983 0.0272 -0.01300 0.9154 -0.02267 0.9797 -0.14220 0.9986 0.0273 -0.01087 0.8784 -0.02059 0.9470 -0.1512 0.9983 0.0263 -0.00911 0.8408 -0.01778 0.9119 -0.10512 0.9983 0.0272 -0.00709 0.77824 -0.01543 0.8684 -0.05512 0.9983 0.0278 -0.00220 0.6548 -0.01090 0.7851 -0.06572 0.9986 0.0268 -0.00202 0.6548 -0.01090 0.7851 -0.06572 0.9986 0.0268 -0.00338 0.1978 -0.01090 0.7851 -0.06572 0.9983 0.0324 -0.00202 0.6548 -0.01090 0.7850 -0.08862 0.9979 0.08187 0.00245 0.1703 -0.00857 0.7310 -0.08480 0.9970 0.0215 0.00245 0.1703 -0.00857 0.7310 -0.04980 0.9970 0.0215 0.00245 0.17880 -0.00857 0.7310 -0.04980 0.9970 0.0215 0.01242 0.3203 -0.00857 0.7310 -0.038862 0.9979 0.0211 0.01391 0.3362 -0.00383 0.3407 -0.03389 0.9929 0.0211 0.01391 0.3362 -0.00383 0.3407 -0.03389 0.9929 0.0211 0.01716 0.4516 0.00122 0.3178 -0.01852 0.9987 0.0211 0.01716 0.4516 0.00122 0.3178 -0.01852 0.9987 0.0211 0.0173 0.5681 0.00352 0.3791 -0.00142 0.9946 0.0215 0.02028 0.5391 0.00525 0.4082 0.00142 0.9946 0.0215 0.02028 0.5391 0.00525 0.4082 0.00149 0.9946 0.0216 0.02397 0.5646 0.00702 0.4445 0.00595 0.9380 0.0116 0.02397 0.5645 0.00879 0.4445 0.02243 0.9085 0.0116 0.02397 0.5645 0.00879 0.4445 0.02243 0.9085 0.0116 0.02397 0.6434 0.01660 0.5252 0.00243 0.9085 0.0116 0.02495 0.6434 0.01660 0.5252 0.00243 0.9085 0.0116 0.02495 0.6434 0.01660 0.5252 0.00970 0.00990 0.9938 0.0106 0.02491 0.6993 0.01396 0.6991 0.03924 0.8958 0.0106 0.02491 0.6993 0.01396 0.6991 0.03924 0.8958 0.0106 0.03407 0.9946 0.0745 0.6481 0.07465 0.0591 0.0985 0.0986 0.0176 0.03423 0.8572 0.02260 0.8333 0.0992 0.9938 0.0126 0.03433 0.9929 0.02260 0.8350 0.9948 0.0993 0.0993 0.04476 0.9948 0.02277 0.8856 0.33727 0.9984 -0.0086 0.04475 0.9989 0.03488 0.9903 0.0903 0.0903 0.0903 0.0084 | | | | | | · · · · · · · · · · · · · · · · · · · |
| -0.07477 0.9456 -0.02454 0.9919 -0.17677 0.9983 0.0272 -0.07300 0.9154 -0.02257 0.99797 -0.14220 0.9986 0.0277 -0.07300 0.9154 -0.02259 0.9470 -0.12555 0.9983 0.0263 -0.0081 0.8408 -0.01778 0.9119 -0.12555 0.9983 0.0263 -0.00709 0.7824 -0.01543 0.8684 -0.10512 0.9986 0.0272 -0.00709 0.7824 -0.01543 0.8684 -0.10512 0.9986 0.0282 -0.00709 0.7824 -0.01543 0.8684 -0.10512 0.9986 0.0282 -0.0022 0.5548 -0.01090 0.7851 -0.08521 0.9986 0.0268 -0.00038 0.1978 -0.01090 0.7851 -0.06572 0.9983 0.0244 0.0038 0.1978 -0.01090 0.7851 -0.06572 0.9983 0.0244 0.00245 0.1703 -0.00857 0.7510 -0.04890 0.9970 0.0215 0.00457 0.1880 -0.00857 0.7510 -0.04898 0.9970 0.0215 0.00457 0.1880 -0.00857 0.7510 -0.04898 0.9970 0.0215 0.00457 0.1880 -0.00857 0.7510 -0.03384 0.9022 0.0197 0.01427 0.3203 -0.00383 0.3407 -0.03384 0.9022 0.0197 0.01427 0.3203 -0.00383 0.3407 -0.03384 0.9022 0.0151 0.01427 0.3362 0.00022 0.3178 -0.01854 0.9817 0.0185 0.0159 0.4085 0.00178 0.3464 -0.00154 0.9817 0.0185 0.0159 0.4085 0.00178 0.3464 -0.00154 0.9817 0.0185 0.0159 0.4085 0.00178 0.3464 -0.00154 0.9917 0.9946 0.0215 0.0228 0.3391 0.00525 0.4062 0.00595 0.9380 0.0116 0.02495 0.4234 0.00052 0.3791 -0.00184 0.9946 0.0215 0.0228 0.3391 0.00525 0.4062 0.00595 0.9380 0.0116 0.02495 0.4234 0.00052 0.4449 0.00142 0.9946 0.0215 0.02337 0.9954 0.00879 0.4045 0.00879 0.4045 0.00224 0.00595 0.9380 0.0116 0.02495 0.4234 0.000702 0.5464 0.000702 0.5464 0.00059 0.9958 0.0160 0.02495 0.4249 0.01418 0.9216 0.0158 0.00059 0.9958 0.0160 0.02495 0.4249 0.01396 0.00059 0.9958 0.0160 0.02495 0.4249 0.001396 0.00059 0.9958 0.0160 0.02495 0.4249 0.001396 0.00059 0.9958 0.0160 0.02495 0.4249 0.001396 0.00059 0.9958 0.0160 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.0006 0.00059 0.9958 0.00058 0.00058 0.00058 0.00058 0.00058 0.0 | | | | | | |
| -0,01300 0,9154 -0,02267 0,9797 -0,13235 0,9983 0,0273 -0,01087 0.8784 -0,02059 0,9770 -0,12355 0,9983 0,0273 -0,01911 0.8408 -0,01778 0,9119 -0,10512 0,9983 0,0273 -0,00711 0.8408 -0,01543 0,8684 -0,10512 0,9980 0,0268 -0,00624 0,7367 -0,01315 0,8251 -0,06572 0,9986 0,0268 -0,00202 0,6548 -0,01090 0,7851 -0,06572 0,9983 0,0268 -0,00388 -0,00388 -0,01090 0,7851 -0,06572 0,9983 0,0268 -0,00388 -0,00388 -0,01090 0,7850 -0,06572 0,9983 0,0268 -0,00388 -0,00388 -0,00857 0,7810 -0,06572 0,9983 0,0268 -0,00265 0,1703 -0,00857 0,7310 -0,0489 0,9970 0,0187 0,00245 0,1788 -0,000857 0,7310 -0,0489 0,9970 0,0215 0,00245 0,1788 -0,00857 0,7310 -0,0489 0,9970 0,0215 0,00245 0,1783 -0,00383 0,3697 -0,0489 0,9990 0,0211 0,01391 0,3362 -0,00181 0,3151 -0,02582 0,9897 0,0211 0,01391 0,3362 -0,00181 0,3151 -0,02582 0,9897 0,0211 0,01391 0,3362 -0,00181 0,3151 -0,02582 0,9897 0,0211 0,01397 0,5081 0,00559 0,4085 0,00022 0,3178 -0,01854 0,9817 0,0185 0,0176 0,4516 0,00352 0,3791 -0,01424 0,9847 0,0185 0,0176 0,4516 0,00352 0,3791 -0,01424 0,9846 0,0215 0,0228 0,5391 0,00525 0,4062 0,00959 0,9380 0,0116 0,0219 0,5646 0,00702 0,4449 0,01418 0,9216 0,0158 0,0229 0,5646 0,00702 0,4449 0,01418 0,9216 0,0158 0,0229 0,0241 0,00397 0,0249 0,00449 0,00448 0,00148 0,0226 0,0389 0,0380 0,0116 0,0249 0,0249 0,0449 0,01418 0,9216 0,0158 0,0229 0,0241 0,0913 0,0120 0,556 0,0004 0,0005 | | | | | | 0.9983 0.0272 |
| -0.00911 0.8408 -0.01778 0.9119 -0.10512 0.9983 0.0272 -0.00709 0.7824 -0.01543 0.8684 -0.0512 0.9980 0.0883 -0.0268 -0.00709 0.7824 -0.01345 0.8251 -0.08521 0.9980 0.0268 -0.00202 0.6548 -0.01090 0.7851 -0.06572 0.9983 0.0224 -0.0038 0.9978 0.0038 -0.0038 -0.0198 -0.01090 0.7851 -0.06572 0.9983 0.0224 -0.0038 0.0038 -0.0038 | | | -0.02267 | | | |
| -0.00709 0,7824 -0.01543 0.8684 -0.10512 0.9986 0.02588 -0.00709 0,7824 -0.00572 0.9983 0.0324 -0.00202 0.6548 -0.01090 0,7851 -0.06572 0.9983 0.0324 -0.0038 0.1978 -0.01090 0,7851 -0.06572 0.9983 0.0324 -0.0038 0.1978 -0.00857 0,7851 -0.06572 0.9983 0.0324 -0.00038 0.1978 -0.00857 0,7850 -0.06572 0.9983 0.0324 -0.00038 0.1978 -0.00857 0,7850 -0.06572 0.9983 0.0324 -0.00245 0.1703 -0.00857 0,7850 -0.0489 0,9970 0.0215 -0.00857 0,7310 -0.04889 0,9970 0.0215 -0.00457 0.1880 -0.00857 0,7310 -0.0489 0,9970 0.0215 -0.00457 0.1880 -0.00857 0,7310 -0.0489 0,9970 0.0215 -0.01242 0.3203 -0.00383 0.3697 -0.04191 0.9962 0.9967 0.0211 0.01242 0.3203 -0.00181 0.3151 -0.02582 0.9867 0.0211 0.01559 0.4085 0.00022 0.3178 -0.01854 0.9817 0.0183 0.01716 0.4516 0.00178 0.3464 -0.00559 0.9867 0.0213 0.01716 0.4516 0.00178 0.3464 -0.00559 0.9867 0.0213 0.0187 0.5646 0.00178 0.3464 -0.00559 0.9867 0.0215 0.02028 0.5391 0.00525 0.3991 -0.00142 0.9946 0.0215 0.02190 0.5646 0.00552 0.4062 0.00595 0.9380 0.0116 0.02190 0.5646 0.00702 0.4449 0.01418 0.9216 0.0188 0.02337 0.5954 0.00879 0.4945 0.02243 0.9085 0.0116 0.02337 0.5954 0.00879 0.4945 0.02243 0.9085 0.0116 0.02337 0.5954 0.00879 0.4945 0.00879 0.4945 0.02243 0.9085 0.0116 0.02495 0.6249 0.01220 0.5631 0.03070 0.8696 0.0158 0.00879 0.02495 0.6249 0.01220 0.5631 0.03070 0.8696 0.0073 0.02652 0.6689 0.01396 0.6091 0.03929 0.8858 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.8858 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.8858 0.0116 0.03525 0.8837 0.02260 0.8837 0.01763 0.6981 0.01763 0.6981 0.03555 0.8837 0.02260 0.03577 0.8895 0.0140 0.0983 0.0159 0.03550 0.8837 0.0996 0.01763 0.6985 0.01763 0.03550 0.8837 0.0996 0.02260 0.8233 0.0997 0.03423 0.0997 0.03423 0.0997 0.03428 0.0997 0 | | 0.8784 | | | | |
| -0.00424 0.7367 -0.01315 0.8251 -0.06572 0.9986 0.0228 | | | | | | |
| -0.00202 0.6548 -0.01090 0.7851 -0.0552 0.9987 0.0187 0.00245 0.1703 -0.00857 0.7310 -0.04880 0.9970 0.0215 0.00245 0.1703 -0.00857 0.7310 -0.04880 0.9970 0.0215 0.00457 0.1880 -0.00857 0.7310 -0.0489 0.9970 0.0215 0.00457 0.1880 -0.00857 0.7310 -0.0489 0.9970 0.0215 0.00457 0.1880 -0.00858 0.3697 -0.03389 0.9929 0.0211 0.01242 0.3203 -0.00183 0.3667 -0.03389 0.9929 0.0211 0.01559 0.4085 0.00022 0.3178 -0.007582 0.9897 0.0211 0.01559 0.4085 0.00022 0.3178 -0.007582 0.9897 0.0211 0.01571 0.0516 0.0516 0.00178 0.3464 -0.00959 0.9873 0.0187 0.01873 0.5081 0.00352 0.3791 -0.00142 0.9946 0.0215 0.02028 0.3591 0.00525 0.4062 0.00595 0.9380 0.0116 0.02190 0.5646 0.00702 0.4449 0.01418 0.9216 0.0158 0.02190 0.5646 0.00702 0.4449 0.01418 0.9216 0.0158 0.02337 0.5954 0.00879 0.4945 0.02243 0.9065 0.0140 0.02495 0.6234 0.001060 0.5252 0.02243 0.9065 0.0116 0.02495 0.6234 0.001060 0.5252 0.002243 0.9065 0.0116 0.02495 0.6234 0.01060 0.5252 0.02243 0.9065 0.0116 0.02495 0.6689 0.011220 0.5631 0.03070 0.8966 0.0073 0.02652 0.6689 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01596 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01596 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01596 0.6091 0.04760 0.9021 0.0106 0.05550 0.8836 0.0156 0.07576 0.6498 0.01576 0.6498 0.01576 0.6498 0.05592 0.9097 0.0101 0.03550 0.8836 0.01765 0.6498 0.01765 0.6498 0.05592 0.9097 0.0101 0.03550 0.8836 0.01765 0.6498 0.01765 0.6498 0.05592 0.9097 0.0101 0.03550 0.8836 0.01766 0.05577 0.8895 0.03778 0.9857 0.0978 0.00550 0.8836 0.01766 0.9277 0.8895 0.01767 0.9350 0.9937 0.0144 0.9937 0.02464 0.8568 0.017778 0.9937 0.0142 0.05777 0.8895 0.0116 0.02777 0.9160 0.02777 0.9850 0.03777 0.9937 0.0074 0.07727 0.9160 0.02777 0.9850 0.03737 0.9937 0.0074 0.007727 0.9160 0.02777 0.9850 0.03737 0.9937 0.0064 0.9937 0.03483 0.9917 0.03380 0.9958 0.0066 0.9937 0.0073 0.0066 0.03735 0.9939 0.03483 0.9959 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.03483 0.9939 0.0 | | | | | | |
| 0.0038 | | | | | | |
| 0.00245 | | | -0.01090 | | | |
| 0.01242 0.3203 -0.00181 0.3151 -0.02582 0.9897 0.0211 0.01559 0.4085 0.00181 0.3151 -0.02582 0.9897 0.0211 0.01559 0.4085 0.00181 0.3151 -0.001854 0.9817 0.0183 0.01716 0.4516 0.00188 0.3464 -0.00959 0.9673 0.0187 0.01873 0.5081 0.00352 0.3791 -0.00142 0.9546 0.0215 0.001873 0.5081 0.00752 0.4082 0.3991 -0.00142 0.9546 0.0215 0.0228 0.3991 0.06525 0.4082 0.00595 0.9380 0.0116 0.02190 0.5646 0.00702 0.4445 0.00243 0.00595 0.9380 0.0116 0.0237 0.5954 0.00879 0.4045 0.02243 0.9085 0.0116 0.0237 0.5954 0.00879 0.4045 0.02243 0.9085 0.0116 0.0237 0.5954 0.00879 0.4045 0.02243 0.9085 0.0116 0.02495 0.6249 0.01220 0.5631 0.03070 0.8696 0.0073 0.02652 0.6689 0.01396 0.6091 0.03929 0.8558 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.8558 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.9097 0.0101 0.03113 0.8168 0.01763 0.6981 0.06426 0.9225 0.0187 0.03113 0.8168 0.01763 0.6981 0.06426 0.9225 0.0187 0.03113 0.8168 0.01763 0.6981 0.06426 0.9225 0.0187 0.03113 0.8168 0.01763 0.6981 0.06426 0.9225 0.0187 0.03113 0.8168 0.01763 0.6981 0.08932 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.09768 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03673 0.9996 0.03577 0.8895 0.0160 0.02577 0.8895 0.0160 0.02577 0.8895 0.0160 0.02577 0.8895 0.0160 0.02577 0.8895 0.0160 0.02577 0.8895 0.0064 0.9997 0.0060 0.02577 0.9860 0.03732 0.0958 0.0064 0.0060 0.0060 0.02577 0.9860 0.03732 0.0958 0.0064 0.0060 | | | | | | |
| 0.01391 0.3362 0.00181 0.3151 -0.07562 0.9697 0.0211 0.01599 0.4085 0.00178 0.3464 -0.00059 0.9673 0.0187 0.0187 0.0187 0.5081 0.00352 0.3791 -0.00142 0.9546 0.0215 0.02028 0.5391 0.00525 0.4062 0.00149 0.00595 0.9380 0.0116 0.02190 0.5646 0.00702 0.4469 0.01448 0.9216 0.0158 0.02190 0.5646 0.00879 0.4045 0.02243 0.9065 0.0160 0.02337 0.5954 0.00879 0.4045 0.02243 0.9065 0.0160 0.02337 0.5954 0.00879 0.4045 0.02243 0.9065 0.0116 0.02495 0.6234 0.01060 0.5252 0.5531 0.02243 0.9065 0.0116 0.02695 0.6249 0.01220 0.5631 0.03070 0.6996 0.0073 0.02695 0.6249 0.01396 0.6091 0.03070 0.6996 0.0073 0.02652 0.6689 0.01396 0.6091 0.03029 0.8958 0.0106 0.02811 0.6013 0.01396 0.6035 0.6035 0.04760 0.9021 0.0120 0.02811 0.6013 0.01396 0.6035 0.6035 0.05592 0.9097 0.0101 0.02961 0.7435 0.0166 0.6035 0.6048 0.005592 0.9097 0.0101 0.02961 0.7435 0.0166 0.6035 0.00763 0.6981 0.006426 0.9225 0.0097 0.0101 0.02564 0.8233 0.0166 0.03254 0.8352 0.00166 0.001396 0.6031 0.007260 0.3313 0.8168 0.01763 0.6981 0.07260 0.3313 0.8168 0.01763 0.6981 0.006426 0.9225 0.0187 0.03254 0.8357 0.02104 0.7913 0.08180 0.9423 0.0097 0.03113 0.7859 0.0104 0.7913 0.08180 0.9423 0.0097 0.03254 0.8357 0.02260 0.8233 0.00180 0.9423 0.0097 0.03550 0.8887 0.02260 0.8233 0.09768 0.0633 0.0159 0.03550 0.8887 0.02260 0.8233 0.09768 0.0633 0.0159 0.03550 0.8887 0.02260 0.8233 0.09768 0.09380 0.0078 0.03550 0.8887 0.02260 0.8233 0.09768 0.09380 0.0078 0.03550 0.8887 0.02260 0.8233 0.09768 0.09885 0.0078 0.03550 0.8887 0.02260 0.8233 0.09768 0.0978 0.0078 0.03550 0.8887 0.02260 0.8233 0.09768 0.0978 0.0078 0.00727 0.9160 0.22170 0.9935 0.0064 0.02277 0.8895 0.03550 0.8877 0.0064 0.02277 0.8895 0.03550 0.8877 0.0060 0.02577 0.8895 0.03550 0.8877 0.0060 0.02577 0.8895 0.03550 0.8877 0.0060 0.02577 0.8895 0.03520 0.9885 0.0078 0.0078 0.0060 0.02577 0.8895 0.0064 0.02577 0.8895 0.0064 0.00727 0.9935 0.0064 0.0060 0.02577 0.0836 0.0060 0.02577 0.8836 0.0060 0.02577 0.0836 0.0060 0.02577 0.0836 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 | | | | | | |
| 0.01559 | | | | | | |
| 0.01873 0.5081 0.00352 0.3791 -0.00142 0.9546 0.0215 0.02028 0.5391 0.00525 0.4062 0.00595 0.9380 0.0116 0.02190 0.5646 0.00702 0.4449 0.01418 0.9216 0.0158 0.02337 0.5954 0.00879 0.4045 0.02243 0.9065 0.0120 0.2337 0.5954 0.00879 0.4045 0.02243 0.9065 0.0120 0.02495 0.6234 0.01060 0.5252 0.02243 0.9085 0.0116 0.02495 0.6249 0.01220 0.5631 0.03070 0.8996 0.0013 0.02652 0.6689 0.01396 0.6991 0.03929 0.8958 0.0106 0.02811 0.6913 0.01396 0.6991 0.03929 0.8958 0.0106 0.02811 0.6913 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01576 0.6498 0.05592 0.9097 0.0101 0.03113 0.8168 0.01765 0.6498 0.05592 0.9097 0.0101 0.03113 0.8168 0.01765 0.6498 0.05592 0.9097 0.0101 0.03113 0.8168 0.01765 0.6981 0.06426 0.9225 0.0187 0.03113 0.8168 0.01765 0.6981 0.07260 0.9307 0.0144 0.03113 0.7859 0.01931 0.7441 0.07260 0.9307 0.0144 0.03126 0.8572 0.02104 0.7913 0.08180 0.9423 0.0097 0.03423 0.8572 0.02104 0.7913 0.08180 0.9423 0.0097 0.03423 0.8572 0.02104 0.7915 0.08932 0.9558 0.0126 0.05550 0.8836 0.02260 0.8233 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8846 0.02260 0.8233 0.09768 0.9633 0.0159 0.03807 0.9360 0.02577 0.8895 0.13778 0.9885 0.0078 0.03807 0.9360 0.02577 0.8895 0.13778 0.9885 0.0078 0.03807 0.9360 0.07577 0.8895 0.016106 0.9885 0.0078 0.03807 0.9360 0.07577 0.8836 0.013778 0.9885 0.0078 0.00577 0.0064 0.9917 0.03128 0.9965 0.03428 0.9917 0.03128 0.9965 0.0064 0.9917 0.03128 0.9965 0.0064 0.9917 0.03128 0.9965 0.0064 0.9917 0.03128 0.9965 0.0064 0.9917 0.03128 0.9965 0.0064 0.9917 0.03128 0.9965 0.0064 0.9917 0.03348 0.9968 0.9968 0.9903 0.0050 0.0060 0.0435 0.9940 0.03438 0.9943 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0060 0.0 | | | | | | |
| 0.02028 0.55301 0.00525 0.4062 0.00595 0.9380 0.0116 0.02190 0.5646 0.00702 0.4449 0.01418 0.9216 0.0158 0.02337 0.5054 0.00879 0.4945 0.02243 0.9065 0.0120 0.02495 0.6234 0.01060 0.5252 0.02243 0.9085 0.0116 0.02495 0.6249 0.01220 0.5631 0.03070 0.8896 0.0073 0.02652 0.6689 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6013 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6013 0.01396 0.6035 0.04760 0.9021 0.0120 0.02961 0.7435 0.01576 0.6498 0.05592 0.9097 0.0101 0.02961 0.7435 0.01763 0.6981 0.05592 0.9097 0.0101 0.03113 0.8168 0.01763 0.6981 0.07260 0.9307 0.0144 0.03113 0.7859 0.01931 0.7441 0.07260 0.9307 0.0144 0.03113 0.7859 0.01931 0.7441 0.07260 0.9307 0.0144 0.03550 0.8837 0.02104 0.7913 0.08180 0.9423 0.0097 0.03550 0.8837 0.02104 0.7815 0.08932 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.08180 0.9428 0.9538 0.0126 0.03550 0.8836 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8836 0.02577 0.8836 0.11273 0.9758 0.0073 0.03573 0.9199 0.02577 0.8836 0.13778 0.9837 0.0112 0.03607 0.9360 0.07277 0.8836 0.13778 0.9837 0.0112 0.03507 0.9360 0.02577 0.8836 0.13778 0.9837 0.0112 0.03512 0.9917 0.03039 0.9656 0.30019 0.9976 0.0060 0.04256 0.9887 0.02888 0.9402 0.22170 0.9935 0.0064 0.04256 0.9887 0.02888 0.9402 0.22170 0.9935 0.0064 0.04256 0.9887 0.02888 0.9903 0.03418 0.9866 0.33727 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.33727 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.33727 0.9984 -0.0057 0.04375 0.9939 0.03485 0.9913 | | | | | | |
| 0.02190 | | | | | | |
| 0.02337 0.5954 0.00879 0.4945 0.02243 0.9085 0.0116 0.02495 0.6234 0.01060 0.5252 0.02243 0.9085 0.0116 0.02295 0.6249 0.01220 0.5631 0.03070 0.8996 0.0073 0.02652 0.6689 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01396 0.6091 0.04760 0.9021 0.0120 0.02811 0.6913 0.01576 0.6498 0.05592 0.9097 0.0101 0.03113 0.8168 0.01763 0.6981 0.06426 0.9225 0.0187 0.03113 0.7859 0.01763 0.6981 0.07260 0.9357 0.0144 0.03254 0.8323 0.01931 0.7441 0.07260 0.9357 0.0144 0.03254 0.8323 0.02104 0.7913 0.08180 0.9423 0.097 0.03423 0.8572 0.02104 0.7815 0.08932 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8836 0.02446 0.8568 0.11273 0.9758 0.0073 0.03550 0.8846 0.02446 0.8568 0.11273 0.9758 0.0073 0.03573 0.9199 0.02577 0.8836 0.13778 0.9837 0.0112 0.03507 0.9360 0.07577 0.8836 0.13778 0.9837 0.0112 0.03563 0.9199 0.02577 0.8836 0.13778 0.9837 0.0112 0.03564 0.9919 0.02577 0.8836 0.13778 0.9837 0.0112 0.03507 0.9360 0.07577 0.8836 0.13778 0.9837 0.0112 0.03533 0.9919 0.02577 0.8836 0.13778 0.9837 0.0112 0.04284 0.9917 0.03039 0.9656 0.30019 0.9976 0.0060 0.04284 0.9917 0.03039 0.9656 0.33727 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.33727 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.46528 0.9993 -0.0052 | | | | | | |
| 0.02495 | | | 0.00879 | | | |
| 0.02652 0.6689 0.01396 0.6091 0.03929 0.8958 0.0106 0.02811 0.6913 0.01396 0.6035 0.04760 0.9021 0.0120 0.02961 0.7435 0.01576 0.6498 0.05592 0.9097 0.0101 0.03113 0.8168 0.01765 0.6498 0.06426 0.9225 0.0187 0.03113 0.7859 0.01931 0.7441 0.07260 0.9307 0.0144 0.03254 0.8323 0.01931 0.7441 0.08932 0.9538 0.0126 0.035254 0.8323 0.02104 0.7913 0.08180 0.9423 0.0097 0.03525 0.8857 0.02104 0.7815 0.08932 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.11273 0.9758 0.0073 0.03550 0.8846 0.02446 0.8233 0.11273 0.9758 0.0073 0.03567 0.9199 0.02577 0.8895 0.13778 0.9837 0.0112 0.03607 0.9360 0.07577 0.8895 0.16106 0.9885 0.0078 0.03567 0.9360 0.07577 0.8895 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.16106 0.9885 0.0078 0.035807 0.9360 0.07577 0.8836 0.37321 0.9984 0.0064 0.04284 0.9917 0.03039 0.9656 0.30019 0.9976 0.0064 0.04284 0.9917 0.03039 0.9656 0.33727 0.9983 0.0057 0.04333 0.9929 0.03418 0.9968 0.37321 0.9984 -0.0057 0.04331 0.9940 0.03485 0.9913 | 0.02495 | 0.6234 | | | | |
| 0.02811 | | | | | | |
| 0.02961 0.7635 0.01576 0.6498 0.0592 0.9197 0.0101 0.03113 0.8168 0.01763 0.6981 0.06426 0.9225 0.0187 0.03113 0.7859 0.01931 0.7441 0.07260 0.9357 0.0144 0.03254 0.6323 0.02104 0.7913 0.08180 0.9423 0.0097 0.03423 0.8572 0.02104 0.7815 0.08932 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8846 0.02446 0.8568 0.11273 0.9758 0.0073 0.03550 0.8846 0.02446 0.8568 0.11273 0.9758 0.0073 0.03573 0.9199 0.02577 0.8895 0.13778 0.9837 0.0112 0.03807 0.9360 0.07577 0.8895 0.16106 0.9885 0.0078 0.04178 0.9796 0.07577 0.8836 0.16106 0.9885 0.0078 0.04178 0.9796 0.07277 0.9160 0.20140 0.9921 0.0074 0.04256 0.9887 0.02888 0.9402 0.20140 0.9921 0.0074 0.04256 0.9887 0.02888 0.9402 0.20140 0.9935 0.0064 0.04256 0.9987 0.03039 0.9656 0.33727 0.9983 0.0050 0.04375 0.9939 0.03418 0.9984 0.337321 0.9984 -0.0057 0.04375 0.9939 0.03485 0.9913 0.46528 0.9993 -0.0052 | | | | | | |
| 0.03113 | | | 0,01576 | | | |
| 0.03113 | 0.03113 | 0.8168 | | | | |
| 0.03524 0.8572 0.02104 0.7815 0.08932 0.9538 0.0126 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8846 0.02446 0.8568 0.11273 0.9758 0.0073 0.03550 0.8846 0.02577 0.8895 0.13778 0.9837 0.0112 0.03607 0.9360 0.02577 0.8836 0.16106 0.9885 0.0078 0.03807 0.9360 0.02577 0.8836 0.16106 0.9885 0.0078 0.04178 0.9796 0.02727 0.9160 0.20140 0.9921 0.0074 0.04256 0.9887 0.02884 0.9402 0.22170 0.9935 0.0064 0.04256 0.9987 0.02884 0.9402 0.22170 0.9935 0.0064 0.04256 0.9917 0.03039 0.9656 0.30019 0.9976 0.0060 0.04375 0.9939 0.03418 0.9958 0.37321 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.40633 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.46528 0.9993 -0.0052 | | | | | | |
| 0.03550 0.8837 0.02260 0.8233 0.09768 0.9633 0.0159 0.03550 0.8846 0.02446 0.8568 0.11273 0.9758 0.0073 0.03550 0.8846 0.02577 0.8895 0.13778 0.9837 0.0112 0.03807 0.9360 0.02577 0.8836 0.16106 0.9885 0.0078 0.04178 0.9796 0.02727 0.9160 0.20140 0.9921 0.0074 0.04276 0.9887 0.02884 0.9402 0.22170 0.9935 0.0064 0.04256 0.9887 0.02884 0.9402 0.22170 0.9935 0.0064 0.04256 0.9877 0.03039 0.9656 0.30019 0.9976 0.0060 0.04284 0.9917 0.03128 0.9658 0.37327 0.9983 0.0050 0.04375 0.9937 0.03320 0.8843 0.37321 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.46528 0.9993 -0.0052 0.04431 0.9940 0.03485 0.9913 | | | | | | |
| 0.03550 | | and the second second | | | | |
| 0.03673 0.9199 0.02577 0.8836 0.16106 0.9885 0.0078 0.0577 0.9360 0.07727 0.9160 0.20140 0.9921 0.0074 0.04178 0.9796 0.02884 0.9402 0.22170 0.9935 0.0064 0.04284 0.9917 0.03039 0.9656 0.30019 0.9976 0.0060 0.04284 0.9917 0.03128 0.9658 0.37327 0.9983 0.0050 0.04373 0.9929 0.03128 0.9658 0.37321 0.9984 0.0057 0.04373 0.9929 0.03418 0.9866 0.46528 0.9933 0.9984 0.0057 0.04375 0.9939 0.03418 0.9866 0.46528 0.9993 0.0068 | | | | | | |
| 0.0507 0.9360 0.07727 0.9160 0.20140 0.9921 0.0074 0.04178 0.9796 0.02884 0.9402 0.22170 0.9935 0.0064 0.04284 0.9417 0.05039 0.9656 0.30019 0.9976 0.0660 0.04284 0.9417 0.03128 0.9658 0.33727 0.9483 0.0050 0.04312 0.9917 0.03128 0.9658 0.33727 0.9483 0.0050 0.04333 0.9929 0.03320 0.9843 0.37321 0.9984 0.0057 0.04375 0.9939 0.03418 0.9866 0.40633 0.9984 0.0008 0.04431 0.9940 0.03485 0.9913 0.46528 0.9993 0.0052 | | | | | | |
| 0.04256 | | | | | | |
| 0.04284 0.9417 0.05039 0.9456 0.33727 0.9483 0.0050 0.04312 0.9917 0.03128 0.9658 0.37321 0.9984 -0.0057 0.04333 0.9929 0.03320 0.9843 0.37321 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9866 0.40633 0.9984 -0.0008 0.46528 0.993 -0.0052 0.04431 0.9940 0.03485 0.9913 0.46528 0.9993 -0.0052 | | | | | | |
| 0.04312 0.9917 0.03128 0.968 0.03732 0.9949 0.03533 0.9929 0.03320 0.9843 0.37321 0.9984 -0.0057 0.04375 0.9939 0.03418 0.9846 0.40633 0.9984 -0.0008 0.46528 0.993 -0.0052 0.04431 0.9940 0.03485 0.9913 0.46528 0.9993 -0.0052 | 0.04284 | | | | | |
| 0.04375 0.9939 0.03418 0.9866 0.40633 0.9984 -0.0008 0.04375 0.9939 0.03485 0.9913 0.46528 0.9993 -0.0052 | 0,04312 | 0.9917 | | | | |
| 0.04375 0.9940 0.03485 0.9913 0.46528 0.9993 -0.0052 | | | | | 0.40633 | 0.9984 -0.0008 |
| | | | | | | 0.99930.0052 |
| 0.04472 0.9955 0.03506 0.9935 0.54824 0.997 -0.0013 | | | 0.03506 | 0.9935 | 0.51265 | 0.9994 -0.0013 |
| 0.04486 0.9963 0.03540 0.9967 0.56872 1.0001 0.0154 | 0.04486 | 0,9963 | | | | |
| 0.04520 0.9974 0.57685 1.0000 -0.0033 | | | | | | |
| 0.04575 0.9986 0.03675 0.9976 0.04649 1.0000 0.03675 0.9974 | | | | | | |
| 0,03724 0,9981 | 0,04049 | 1,0000 | | | | |
| 0.03780 0.9988 | | | | | | |
| 0,03903 1,0000 | | | 0,03903 | 1,0000 | | |

Table 6.9
BOUNDARY LAYER AND WAKE PARAMETERS

Case 1 $M_{\infty} = 0.676$, $\alpha = 2.40^{\circ}$, Re = 5.7 × 10⁶, Probes B

| x /c | у/с | Surface | c _f | δ*/c | θ/c | Н |
|-------------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004348 | 0.000236 | 0.000140 | 1.692 |
| 0.152 | 2.42 | Lower | 0.004037 | 0.000277 | 0.000163 | 1.700 |
| 0.179 | 1.04 | Upper | 0.003783 | 0.000391 | 0.000216 | 1.811 |
| 0.179 | 2.29 | Upper | 0.003455 | 0.000402 | 0.000216 | 1.864 |
| 0.319 | 1.15 | Upper | 0.002811 | 0.000801 | 0.000436 | 1.836 |
| 0.319 | 2.40 | Upper | 0.003067 | 0.000773 | 0.000430 | 1.799 |
| 0.75 | 2.18 | Upper | 0.001806 | 0.002813 | 0.001553 | 1.812 |
| 0.90 | 2.64 | Upper | 0.001308 | 0.004740 | 0.002482 | 1.910 |
| 0.95 | 2.44 | Upper | 0.000930 | 0.006818 | 0.003244 | 2.102 |
| 1.00 | 2.02 | Upper wake | - | 0.009472 | 0.004044 | 2.342 |
| 1.00 | 2.02 | Lower wake | - | 0.003189 | 0.002046 | 1.559 |
| 1.00 | 2.02 | Total wake | - | 0.012661 | 0.006090 | 2.079 |
| 1.025 | 2.82 | Wake | - | 0.010994 | 0.006091 | 1.805 |
| 2.00 | 1.50 | Wake | - | 0.005321 | 0.004239 | 1.256 |

Case 2 $M_{\infty} = 0.676$, $\alpha = -2.18^{\circ}$, Re = 5.7 × 10⁶, Probes B

| x/c | у/с | Surface | c _f | δ*/c | θ/с | Н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004021 | 0.000271 | 0.000150 | 1.813 |
| 0.152 | 2.42 | Lower | 0.004029 | 0.000285 | 0.000157 | 1.809 |
| 0.179 | 1.04 | Upper | 0.004351 | 0.000321 | 0.000197 | 1.632 |
| 0.179 | 2.29 | Upper | 0.004138 | 0.000307 | 0.000184 | 1.667 |
| 0.319 | 1.15 | Upper | 0.003163 | 0.000650 | 0.000385 | 1.688 |
| 0.319 | 2.40 | Upper | 0.003411 | 0.000629 | 0.000380 | 1.654 |
| 0.75 | 2.18 | Upper | 0.002123 | 0.002124 | 0.001230 | 1.728 |
| 0.90 | 2.64 | Upper | 0.001668 | 0.003364 | 0.001887 | 1.783 |
| 0.95 | 2.44 | Upper | 0.001435 | 0.004072 | 0.002207 | 1.845 |
| 1.00 | 2.02 | Upper wake | _ | 0.006364 | 0.003074 | 2.070 |
| 1.00 | 2.02 | Lower wake | - | 0.006052 | 0.003793 | 1.596 |
| 1.00 | 2.02 | Total wake | - | 0.012416 | 0.006867 | 1.808 |
| 1.025 | 2.82 | Wake | - | 0.009963 | 0.006036 | 1.650 |
| 2.00 | 1.50 | Wake | - | 0.004949 | 0.003935 | 1.258 |

Case 3 $M_{\infty} = 0.600$, $\alpha = 2.57^{\circ}$, Re = 6.3×10^{6} , Probes B

| x/c | у/с | Surface | C _f | δ*/c | θ/с | Н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004241 | 0.000343 | 0.000229 | 1.497 |
| 0.152 | 2.42 | Lower | 0.003990 | 0.000369 | 0.000240 | 1.536 |
| 0.179 | 1.04 | Upper | 0.003400 | 0.000850 | 0.000542 | 1.569 |
| 0.179 | 2.29 | Upper | 0.003196 | 0.001072 | 0.000678 | 1.581 |
| 0.319 | 1.15 | Upper | 0.002609 | 0.001629 | 0.000990 | 1.645 |
| 0.319 | 2.40 | Upper | 0.003101 | 0.001089 | 0.000698 | 1.561 |
| 0.75 | 2.18 | Upper | 0.001688 | 0.003556 | 0.002061 | 1.726 |
| 0.90 | 2.64 | Upper | 0.001173 | 0.006077 | 0.003255 | 1.867 |
| 0.95 | 2.44 | Upper | 0.000875 | 0.007912 | 0.003928 | 2.015 |
| 1.00 | 2.02 | Upper wake | - | 0.010887 | 0.004662 | 2.335 |
| 1.00 | 2.02 | Lower wake | -0.0 | 0.003157 | 0.002090 | 1.511 |
| 1.00 | 2.02 | Total wake | - | 0.014044 | 0.006752 | 2.080 |
| 1.025 | 2.82 | Wake | - | 0.012665 | 0.006849 | 1.849 |
| 2.00 | 1.50 | Wake | - | 0.006204 | 0.005030 | 1.233 |

Table 6.9 (continued)

Case 6 $M_{\infty} = 0.725$, $\alpha = 2.92^{\circ}$, Re = 6.5 × 10⁶, Probes B

| x/c | у/с | Surface | c _f | 6*/c | θ/c | н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004210 | 0.000305 | 0.000188 | 1.622 |
| 0.152 | 2.42 | Lower | 0.003640 | 0.000419 | 0.000250 | 1.673 |
| 0.179 | 1.04 | Upper | 0.003016 | 0.000610 | 0.000305 | 2.001 |
| 0.179 | 2.29 | Upper | 0.002913 | 0.000641 | 0.000322 | 1.994 |
| 0.319 | 1.15 | Upper | 0.002726 | 0.001025 | 0.000513 | 1.998 |
| 0.319 | 2.40 | Upper | 0.002739 | 0.001001 | 0.000500 | 2.002 |
| 0.75 | 2.18 | Upper | - | - | - | - |
| 0.90 | 2.64 | Upper | 0.000924 | 0.007850 | 0.003761 | 2.08 |
| 0.95 | 2.44 | Upper | 0.000740 | 0.010243 | 0.004663 | 2.19 |
| 1.00 | 2.02 | Upper wake | - | 0.012949 | 0.005530 | 2.34 |
| 1.00 | 2.02 | Lower wake | - | 0.003192 | 0.002005 | 1.592 |
| 1.00 | 2.02 | Total wake | - | 0.016141 | 0.007535 | 2.14 |
| 1.025 | 2.82 | Wake | | 0.013899 | 0.007135 | 1.94 |
| 2.00 | 1.50 | Wake | - | 0.008103 | 0.006319 | 1.282 |

Case 7 $M_{\infty} = 0.725$, $\alpha = 2.55^{\circ}$, Re = 6.5 × 10⁶, Probes B

| x/c | у/с | Surface | C _f | δ*/c | θ/с | Н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004180 | 0.000311 | 0.000190 | 1.635 |
| 0.152 | 2.42 | Lower | 0.003839 | 0.000382 | 0.000231 | 1.649 |
| 0.179 | 1.04 | Upper | 0.003230 | 0.000535 | 0.000273 | 1.959 |
| 0.179 | 2.29 | Upper | 0.003162 | 0.000595 | 0.000307 | 1.936 |
| 0.319 | 1.15 | Upper | 0.002723 | 0.000997 | 0.000508 | 1.965 |
| 0.319 | 2.40 | Upper | 0.002677 | 0.000966 | 0.000490 | 1.974 |
| 0.75 | 2.18 | Upper | - 1 | - 1 | - 1 | - |
| 0.90 | 2.64 | Upper | 0.000892 | 0.007295 | 0.003409 | 2.140 |
| 0.95 | 2.44 | Upper | 0.000787 | 0.009263 | 0.004185 | 2.213 |
| 1.00 | 2.02 | Upper wake | - | 0.011919 | 0.004823 | 2.471 |
| 1.00 | 2.02 | Lower wake | - | 0.003374 | 0.002083 | 1.619 |
| 1.00 | 2.02 | Total wake | - | 0.015293 | 0.006906 | 2.214 |
| 1.025 | 2.82 | Wake | - | 0.013314 | 0.006796 | 1.959 |
| 2.00 | 1.50 | Wake | - | 0.006902 | 0.005346 | 1.291 |

Case 8 $M_{\infty} = 0.728$, $\alpha = 3.22^{\circ}$, Re = 6.5 × 10⁶, Probes B

| x/@ | у/с | Surface | c _f | δ*/c | θ/с | Н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004121 | 0.000311 | 0.000191 | 1.631 |
| 0.152 | 2.42 | Lower | 0.003799 | 0.000388 | 0.000236 | 1.647 |
| 0.179 | 1.04 | Upper | 0.002947 | 0.000601 | 0.000292 | 2.056 |
| 0.179 | 2.29 | Upper | 0.003149 | 0.000584 | 0.000291 | 2.005 |
| 0.319 | 1.15 | Upper | 0.002705 | 0.001011 | 0.000497 | 2.035 |
| 0.319 | 2.40 | Upper | 0.002783 | 0.000995 | 0.000490 | 2.028 |
| 0.75 | 2.18 | Upper | - | - | - | - |
| 0.90 | 2.64 | Upper | 0.000929 | 0.009289 | 0.004415 | 2.104 |
| 0.95 | 2.44 | Upper | 0.000777 | 0.011954 | 0.005466 | 2.187 |
| 1.00 | 2.02 | Upper wake | - | - | - | - |
| 1.00 | 2.02 | Lower wake | - | - | - | - |
| 1.00 | 2.02 | Total wake | - | - | - | - |
| 1.025 | 2.82 | Wake | - | 0.014895 | 0.007690 | 1.937 |
| 2.00 | 1.50 | Wake | - | 0.011161 | 0.008758 | |

Table 6.9 (continued)

Case 9 $M_{\infty} = 0.730$, $\alpha = 3.19^{\circ}$, Re = 6.5×10^{6} Probes C1

| x/c | y/c | Surface | C _f | δ*/c | θ/c | Н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.003983 | 0.000325 | 0.000196 | 1.661 |
| 0.179 | 1.04 | Upper | 0.002700 | 0.000803 | 0.000378 | 2.123 |
| 0.319 | 1.15 | Upper | 0.002723 | 0.001060 | 0.000516 | 2.052 |
| 0.404 | 1.20 | Upper | 0.002489 | 0.001311 | 0.000626 | 2.093 |
| 0.498 | 1.34 | Upper | 0.002533 | 0.001533 | 0.000731 | 2.097 |
| 0.574 | 1.31 | Upper | 0.001049 | 0.003395 | 0.001418 | 2.394 |
| 0.65 | 2.60 | Upper | 0.000901 | 0.004956 | 0.002043 | 2.426 |
| 0.75 | 2.21 | Upper | 0.000831 | 0.006884 | 0.002999 | 2.296 |
| 0.90 | 2.43 | Upper | 0.000959 | 0.008958 | 0.004360 | 2.055 |
| 1.00 | 2.02 | Upper wake | - | 0.014433 | 0.006510 | 2,217 |
| 1.00 | 2.02 | Lower wake | - | 0.003233 | 0.001982 | 1.631 |
| 1.00 | 2.02 | Total wake | - | 0.017666 | 0.008492 | 2.080 |
| 1.025 | 2.82 | Wake | - | 0.014709 | 0.007907 | 1.860 |
| 2.00 | 1.50 | Wake | - | 0.010809 | 0.008430 | 1.282 |

Case 9 $M_{\infty} = 0.730$, $\alpha = 3.19^{\circ}$, Re = 6.5×10^{6} Probes C2

y/c Surface x/c δ*/c θ/c H $c_{\mathbf{f}}$ 0.152 1.17 Lower 0.179 1.04 Upper 0.319 1.15 Upper 0.404 1.20 Upper 0.498 1.34 Upper 0.002532 0.001539 0.000735 2.094 Upper 0.574 1.31 0.001048 0.003391 0.001422 2.385 0.004942 0.65 2.60 Upper 0.000906 0.002050 2.410 0.75 2.21 Upper 0.009080 0.000985 0.004372 0.90 2.077 2.43 Upper 1.00 2.02 Upper wake 0.014452 0.006498 2.224

1.00

1.00

2.00

1.025

2.02

2.02

2.82

1.50

Lower wake

Total wake

Wake

Wake

NB Reanalysis of data for probes C1 taking static pressure coefficient as constant

0.003101

0.017553

0.014694

0.001936

0.008433

0.007873

1.602

2.081

1.867

Case 9 $M_{\infty} = 0.730$, $\alpha = 3.19^{\circ}$, Re = 6.5 × 10⁶ Probes D1

| x/c | y/c | Surface | c _f | δ*/c | θ/c | Н |
|-------|------|------------|----------------|----------|------------|-------|
| 0.152 | 1.17 | Lower | 0.003933 | 0.000331 | 0.000201 | 1.649 |
| 0.152 | 2.00 | Lower | 0.003619 | 0.000371 | 0.000222 | 1.667 |
| 0.152 | 2.42 | Lower | 0.003990 | 0.000326 | 0.000198 | 1.650 |
| 0.179 | 1.04 | Upper | 0.002717 | 0.000744 | 0.000359 | 2.075 |
| 0.179 | 1.88 | Upper | 0.002776 | 0.000754 | . 0.000364 | 2.069 |
| 0.179 | 2.29 | Upper | 0.002764 | 0.000753 | 0.000359 | 2.095 |
| 0.319 | 1.15 | Upper | 0.002573 | 0.001000 | 0.000481 | 2.077 |
| 0.319 | 1.98 | Upper | 0.002595 | 0.001050 | 0.000507 | 2.070 |
| 0.319 | 2.40 | Upper | 0.002581 | 0.001051 | 0.000507 | 2.075 |
| 0.404 | 1.20 | Upper | 0.002381 | 0.001285 | 0.000614 | 2.093 |
| 0.404 | 2.03 | Upper | 0.002765 | 0.001232 | 0.000602 | 2.048 |
| 0.404 | 2.45 | Upper | 0.002491 | 0.001332 | 0.000628 | 2.119 |
| 0.498 | 1.34 | Upper | 0.002487 | 0.001712 | 0.000820 | 2.087 |
| 0.498 | 2.17 | Upper | 0.002528 | 0.001528 | 0.000722 | 2.117 |
| 0.498 | 2.59 | Upper | 0.002537 | 0.001552 | 0.000738 | 2.103 |
| 0.574 | 1.31 | Upper | 0.000840 | 0.003977 | 0.001540 | 2.582 |
| 0.574 | 2.14 | Upper | 0.000967 | 0.003547 | 0.001488 | 2.383 |
| 0.574 | 2.56 | Upper | 0.001034 | 0.003697 | 0.001534 | 2.411 |
| 0.65 | 2.60 | Upper | 0.000982 | 0.005912 | 0.002522 | 2.344 |
| 0.75 | 2.21 | Upper | 0.000808 | 0.007260 | 0.003009 | 2.413 |
| 0.90 | 2.43 | Upper | 0.000980 | 0.009824 | 0.004845 | 2.028 |
| 1.00 | 2.02 | Upper wake | - | 0.017673 | 0.006410 | 2.757 |
| 1.00 | 2.02 | Lower wake | - | 0.003256 | 0.002049 | 1.589 |
| 1.00 | 2.02 | Total wake | - | 0.020929 | 0.008459 | 2.474 |
| 1.025 | 2.82 | Wake | - | 0.014680 | 0.007847 | 1.871 |
| 2.00 | 1.50 | Wake | - 1 | - | - | - |

NB For traverses 0.65 \leqslant x/c \leqslant 1.025, probes situated upstream may affect results

Case 10 $M_{\infty} = 0.750$, $\alpha = 3.19^{\circ}$, Re = 6.2 × 10⁶ Probes C1

| x/c | y/c | Surface | $c_{\mathbf{f}}$ | δ*/c | θ/c | Н |
|--------|------|------------|------------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.003983 | 0.000359 | 0.000213 | 1.688 |
| 0.179 | 1.04 | Upper | 0.002602 | 0.000810 | 0.000386 | 2.097 |
| 0.319 | 1.15 | Upper | 0.002871 | 0.001022 | 0.000500 | 2.043 |
| 0.404 | 1.20 | Upper | 0.002596 | 0.001293 | 0.000613 | 2.109 |
| 0.498 | 1.34 | Upper | 0.002421 | 0.001660 | 0.000775 | 2.143 |
| 0.574 | 1.31 | Upper | # | 0.002857 | 0.001209 | 2.364 |
| 0.65 | 2.60 | Upper | # | 0.009403 | 0.002437 | 3.859 |
| 0.75 | 2.21 | Upper | ‡ | 0.017408 | 0.004016 | 4.335 |
| 0.90 | 2.43 | Upper | 0.000591 | 0.016740 | 0.006588 | 2.541 |
| 1.00 | 2.02 | Upper wake | - | 0.029063 | 0.010528 | 2.761 |
| 1.00 | 2.02 | Lower wake | - | 0.002931 | 0.001710 | 1.714 |
| †1.00 | 2.02 | Total wake | - | 0.031994 | 0.012239 | 2.614 |
| 11.025 | 2.82 | Wake | - | 0.019007 | 0.009871 | 1.926 |
| 2.00 | 1.50 | Wake | - | 0.015919 | 0.012314 | 1.293 |

NB x/c = 2.0, includes shock losses + Linear extrapolation to edge of wake + Near separation, method of deduction not accurate

Case 12 $M_{\infty} = 0.730$, $\alpha = 3.19^{\circ}$, Re = 2.7 × 10⁶ Probes C

| x/c | y/c | Surface | $c_{\mathbf{f}}$ | δ*/c | θ/с | Н |
|-------|------|------------|------------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.005053 | 0.000340 | 0.000197 | 1.725 |
| 0.179 | 1.04 | Upper | 0.002993 | 0.000946 | 0.000444 | 2.130 |
| 0.319 | 1.15 | Upper | - | | - | - |
| 0.404 | 1.20 | Upper | 0.002844 | 0.001591 | 0.000759 | 2,097 |
| 0.498 | 1.34 | Upper | 0.002213 | 0.002571 | 0.001231 | 2.088 |
| 0.574 | 1.31 | Upper | - | - | - | - |
| 0.65 | 2.60 | Upper | 0.001683 | 0.003977 | 0.001940 | 2.051 |
| 0.75 | 2.21 | Upper | 0.001323 | 0.005814 | 0.002729 | 2.131 |
| 0.90 | 2.43 | Upper | 0.000961 | 0.009854 | 0.004231 | 2.329 |
| 1.00 | 2.02 | Upper wake | - | 0.015553 | 0.005857 | 2.656 |
| 1.00 | 2.02 | Lower wake | - | 0.003846 | 0.002191 | 1.755 |
| 1.00 | 2.02 | Total wake | - | 0.019399 | 0.008048 | 2,410 |
| 1.025 | 2.82 | Wake | - | 0.018150 | 0.008295 | 2.188 |
| 2.00 | 1.50 | Wake | - | 0.008693 | 0.006722 | 1.293 |

Case 12 $M_{\infty} = 0.730$, $\alpha = 3.19^{\circ}$, Re = 2.7 × 10⁶ Probes D

| x/c | у/с | Surface | c _f | δ*/c | θ/c | Н |
|-------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.005077 | 0.000355 | 0.000209 | 1,696 |
| 0.152 | 2.00 | Lower | - | - | - | - |
| 0.152 | 2.42 | Lower | 0.004618 | 0.000379 | 0.000213 | 1.781 |
| 0.179 | 1.04 | Upper | 0.003239 | 0.000894 | 0.000427 | 2.094 |
| 0.179 | 1.88 | Upper | 0.003288 | 0.000851 | 0.000411 | 2.068 |
| 0.179 | 2.29 | Upper | 0.003382 | 0.000859 | 0.000411 | 2.087 |
| 0.319 | 1.15 | Upper | 0.003685 | 0.001163 | 0.000576 | 2.018 |
| 0.319 | 1.98 | Upper | 0.003402 | 0.001282 | 0.000627 | 2.044 |
| 0.319 | 2.40 | Upper | 0.003197 | 0.001318 | 0.000633 | 2.081 |
| 0.404 | 1.20 | Upper | 0.002749 | 0.001614 | 0.000762 | 2.117 |
| 0.404 | 2.03 | Upper | 0.002850 | 0.001697 | 0.000810 | 2.094 |
| 0.404 | 2.45 | Upper | 0.003137 | 0.001543 | 0.000743 | 2.075 |
| 0.498 | 1.34 | Upper | 0.002068 | 0.002665 | 0.001264 | 2.108 |
| 0.498 | 2.17 | Upper | 0.002054 | 0.002474 | 0.001162 | 2.129 |
| 0.498 | 2.59 | Upper | 0.002222 | 0.002679 | 0.001274 | 2.104 |
| 0.574 | 1.31 | Upper | - | - | - | - |
| 0.574 | 2.14 | Upper | 0.001775 | 0.003441 | 0.001645 | 2.092 |
| 0.574 | 2.56 | Upper | 0.001638 | 0.003575 | 0.001656 | 2.159 |
| 0.65 | 2.60 | Upper | 0.001598 | 0.004084 | 0.001964 | 2.080 |
| 0.75 | 2.21 | Upper | 0.001261 | 0.005830 | 0.002707 | 2.154 |
| 0.90 | 2.43 | Upper | 0.000903 | 0.010859 | 0.004767 | 2.278 |
| 1.00 | 2.02 | Upper wake | - | 0.019805 | 0.005295 | 3.740 |
| 1.00 | 2.02 | Lower wake | - | 0.003847 | 0.001931 | 1.992 |
| 1.00 | 2.02 | Total wake | - | 0.023653 | 0.007227 | 3.273 |
| 1.025 | 2.82 | Wake | - | 0.018124 | 0.008298 | 2.184 |
| 2.00 | 1.50 | Wake | - | 0.008766 | 0.006774 | 1.294 |

NB For traverses 0.65 \leq x/c \leq 1.025, probes situated upstream may affect results, x/c = 2.0, includes shock losses

Table 6.9 (concluded)

Case 13 $M_{\infty} = 0.745$, $\alpha = 3.19^{\circ}$, Re = 2.7 × 10⁶ Probes D

| x/c | y/c | Surface | c _f | δ*/c | θ/с | Н |
|--------|------|------------|----------------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.005023 | 0.000354 | 0.000205 | 1.723 |
| 0.152 | 2.00 | Lower | 0.005003 | 0.000356 | 0.000207 | 1.721 |
| 0.152 | 2.42 | Lower | 0.005038 | 0.000342 | 0.000199 | 1.716 |
| 0.179 | 1.04 | Upper | 0.003115 | 0.630893 | 0.000425 | 2.100 |
| 0.179 | 1.88 | Upper | 0.003318 | 0.000870 | 0.000419 | 2.075 |
| 0.179 | 2.29 | Upper | 0.003385 | 0.000860 | 0.000412 | 2.087 |
| 0.319 | 1.15 | Upper | 0.003241 | 0.001230 | 0.000590 | 2.085 |
| 0.319 | 1.98 | Upper | 0.003387 | 0.001289 | 0.000624 | 2.065 |
| 0.319 | 2.40 | Upper | 0.003466 | 0.001229 | 0.000597 | 2.059 |
| 0.404 | 1.20 | Upper | 0.003061 | 0.001524 | 0.000726 | 2.099 |
| 0.404 | 2.03 | Upper | - | - | - | - |
| 0.404 | 2.45 | Upper | 0.003248 | 0.001516 | 0.000724 | 2.095 |
| 0.498 | 1.34 | Upper | 0.003048 | 0.001880 | 0.000893 | 2.106 |
| 0.498 | 2.17 | Upper | 0.002958 | 0.001752 | 0.000826 | 2.120 |
| 0.498 | 2.59 | Upper | 0.003070 | 0.001766 | 0.000840 | 2.103 |
| 0.574 | 1.31 | Upper | 0.000828 | 0.004791 | 0.001754 | 2.732 |
| 0.574 | 2.14 | Upper | - | - | - | - |
| 0.574 | 2.56 | Upper | - | - | - | - |
| 0.65 | 2.60 | Upper | 0.000793 | 0.009960 | 0.003987 | 2.498 |
| 0.75 | 2.21 | Upper | 0.000578 | 0.011946 | 0.004037 | 2.959 |
| 0.90 | 2.43 | Upper | 0.000749 | 0.016542 | 0.006569 | 2.518 |
| 1.00 | 2.02 | Upper wake | - | - | - | - |
| 1.00 | 2.02 | Lower wake | - | - | _ | - |
| 1.00 | 2.02 | Total wake | - | - | - | - |
| +1.025 | 2.82 | Wake | - | 0.021960 | 0.010036 | 2.188 |
| 2.00 | 1.50 | Wake | - | - | - | - |

NB For traverses 0.65 < x/c < 1.025, probes situated upstream may affect results, + Linear extrapolation to edge of wake

Case 13A $M_{\infty} = 0.740$, $\alpha = 3.19^{\circ}$, Re = 2.7 × 10⁶ Probes C2

| x/c | у/с | Surface | Cf | δ*/c | θ/с | Н |
|-------|------|------------|----------|----------|----------|-------|
| 0.152 | 1.17 | Lower | 0.004894 | 0.000360 | 0.000208 | 1.733 |
| 0.179 | 1.04 | Upper | 0.003116 | 0.000919 | 0.000430 | 2.135 |
| 0.319 | 1.15 | Upper | - | - | - | - |
| 0.404 | 1.20 | Upper | 0.003178 | 0.001479 | 0.000704 | 2.100 |
| 0.498 | 1.34 | Upper | 0.002995 | 0.001863 | 0.000874 | 2.131 |
| 0.574 | 1.31 | Upper | - | - | - | - |
| 0.65 | 2.60 | Upper | 0.001100 | 0.005524 | 0.002285 | 2.418 |
| 0.75 | 2.21 | Upper | 0.000848 | 0.008696 | 0.003465 | 2.510 |
| 0.90 | 2.43 | Upper | 0.000775 | 0.012874 | 0.005084 | 2.532 |
| 1.00 | 2.02 | Upper wake | - | 0.020360 | 0.006964 | 2.924 |
| 1.00 | 2.02 | Lower wake | - | 0.003717 | 0.002157 | 1.723 |
| 1.00 | 2.02 | Total wake | - | 0.024077 | 0.009121 | 2.640 |
| 1.025 | 2.82 | Wake | - | 0.018937 | 0.008884 | 2.132 |
| 2.00 | 1.50 | Wake | - | 0.012273 | 0.009502 | 1.292 |

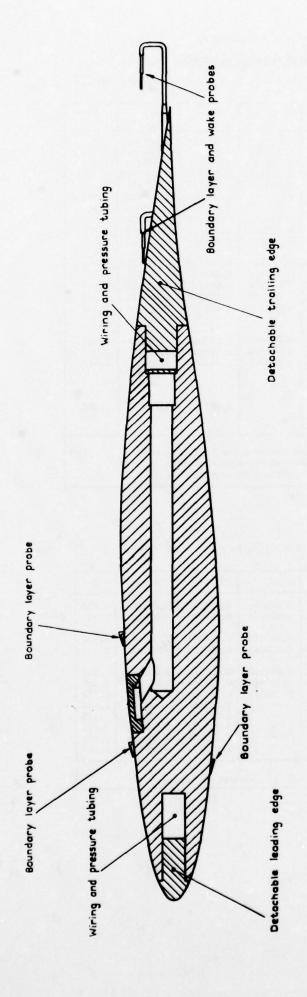
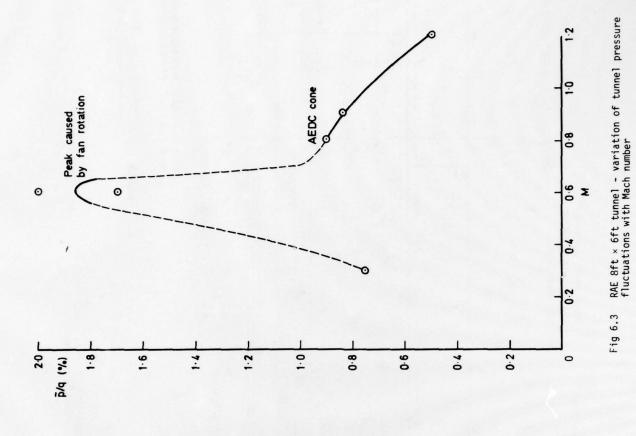




Fig 6.1 Cross-section through a normal chord illustrating the suction ducts and various probes



(2nd order calculations but with Wilby compressibility factor)

Cp* (M = 0.66)

Sells (120/20), M-0.667, C-0.56

40-4 0.5

9.0-

9 0

Calculated inviscid pressure distributions RAE 2822 section, α = 1.06 degrees Fig 6.2

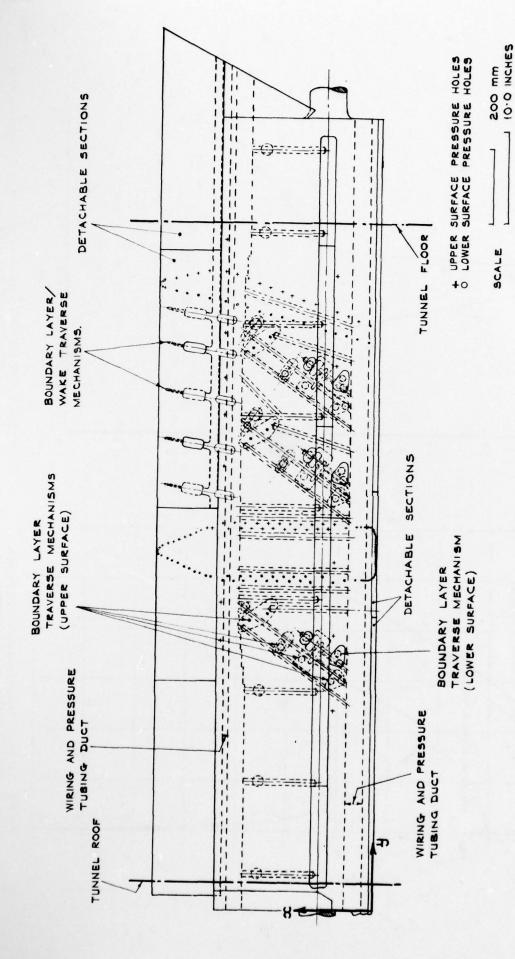
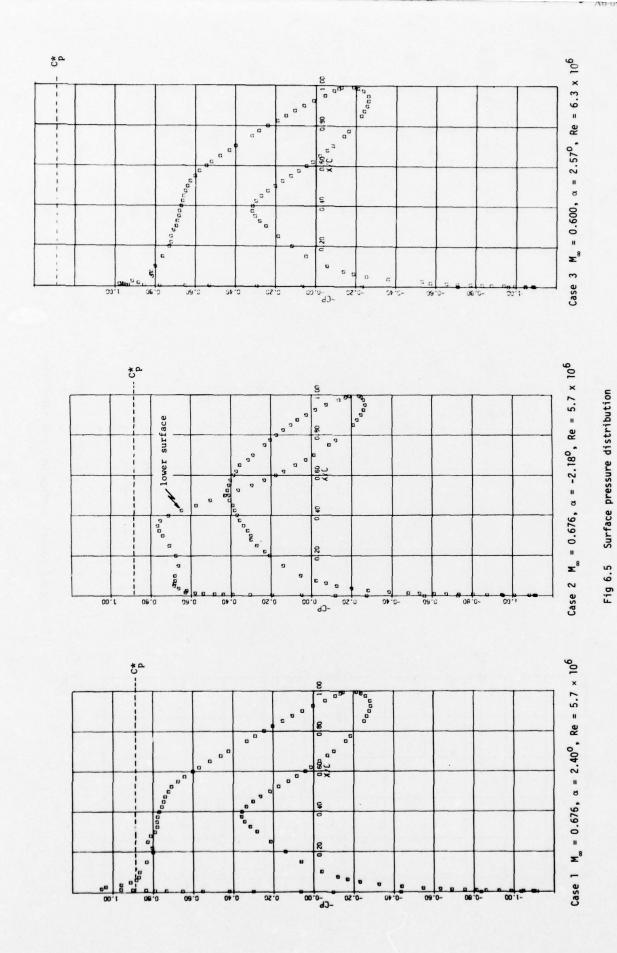
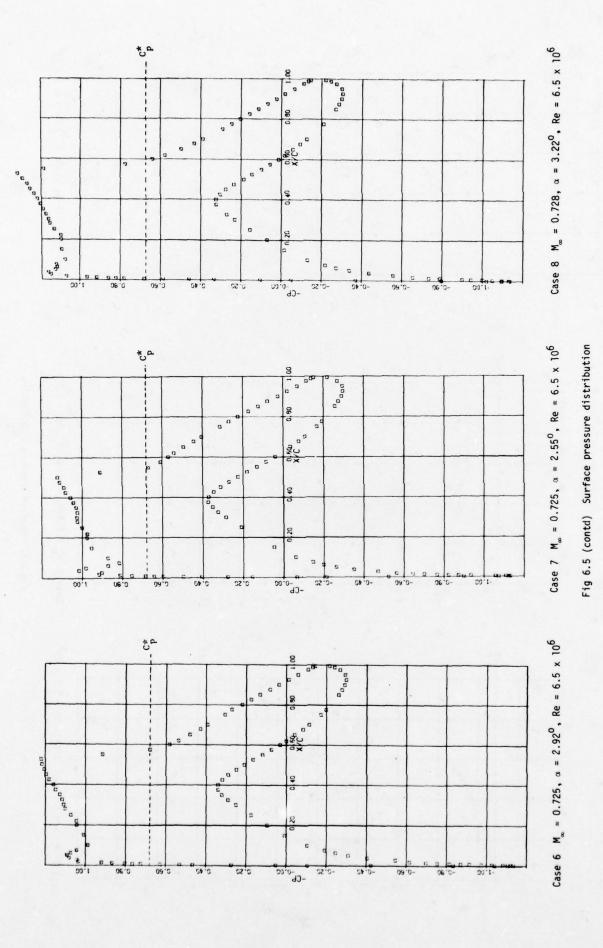
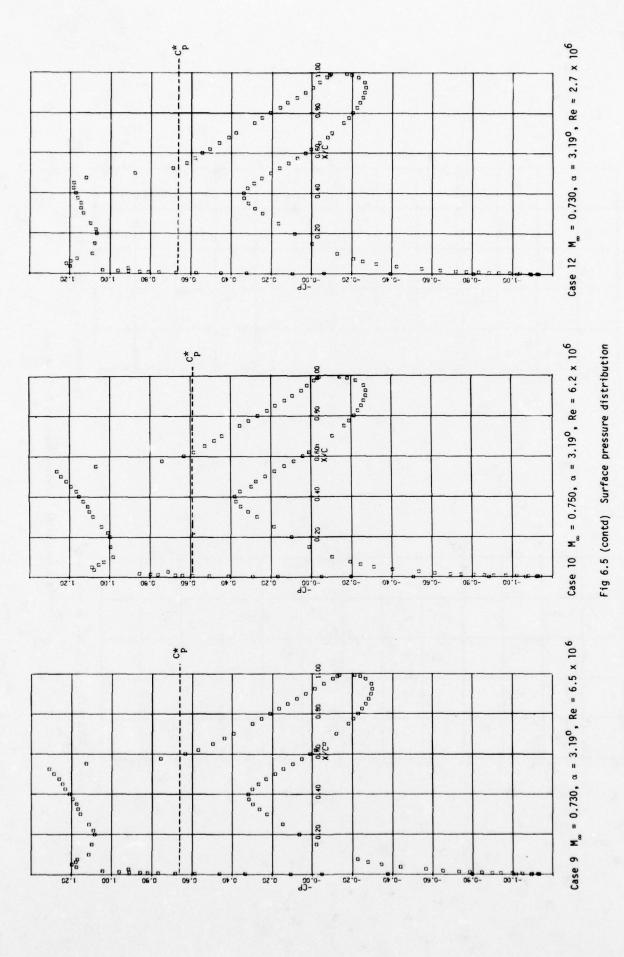
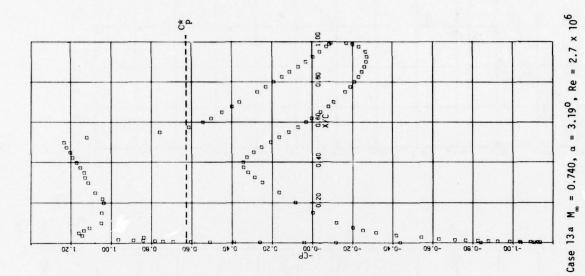


Fig 6.4 Plan view of model showing locations of traverse mechanisms and surface pressure holes









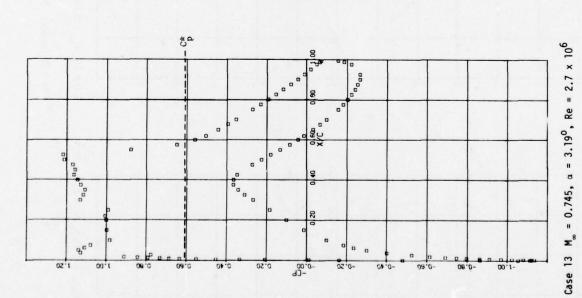


Fig 6.5 (concld) Surface pressure distribution

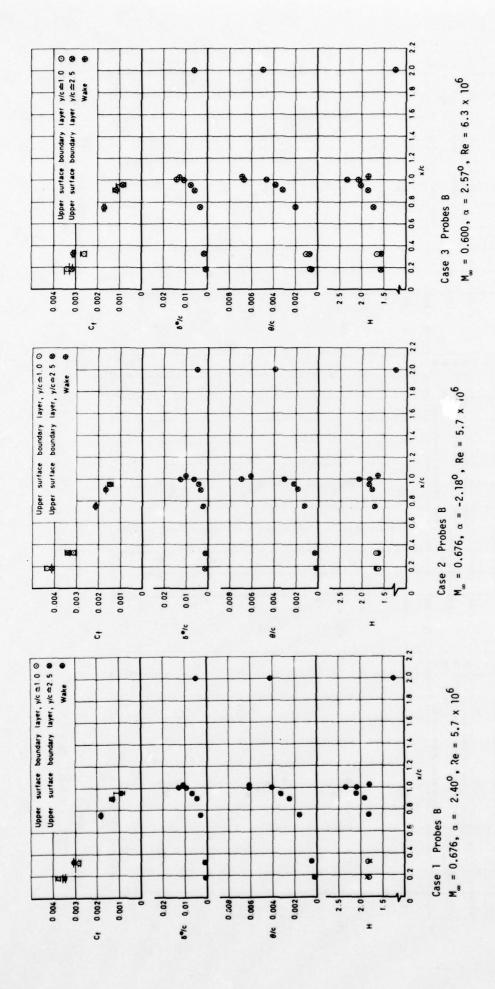


Fig 6.6 Boundary layer and wake parameters

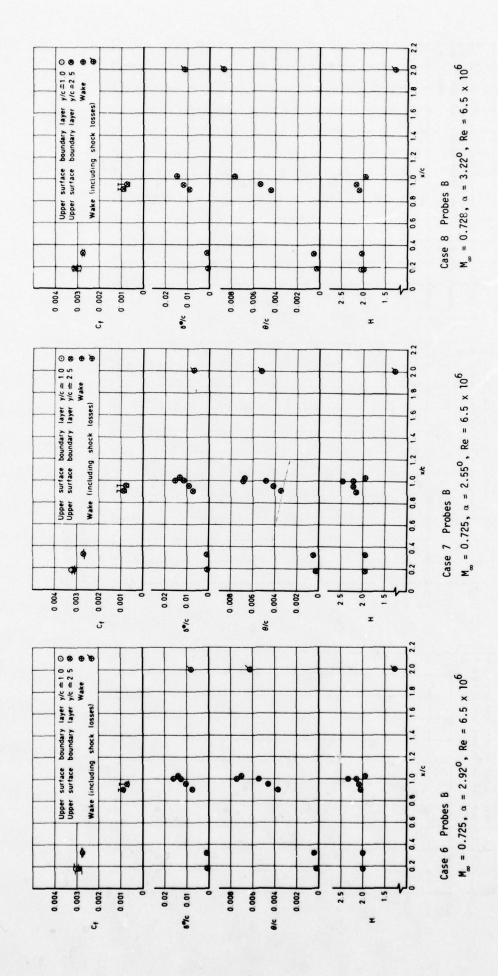


Fig 6.6 (contd) Boundary layer and wake parameters

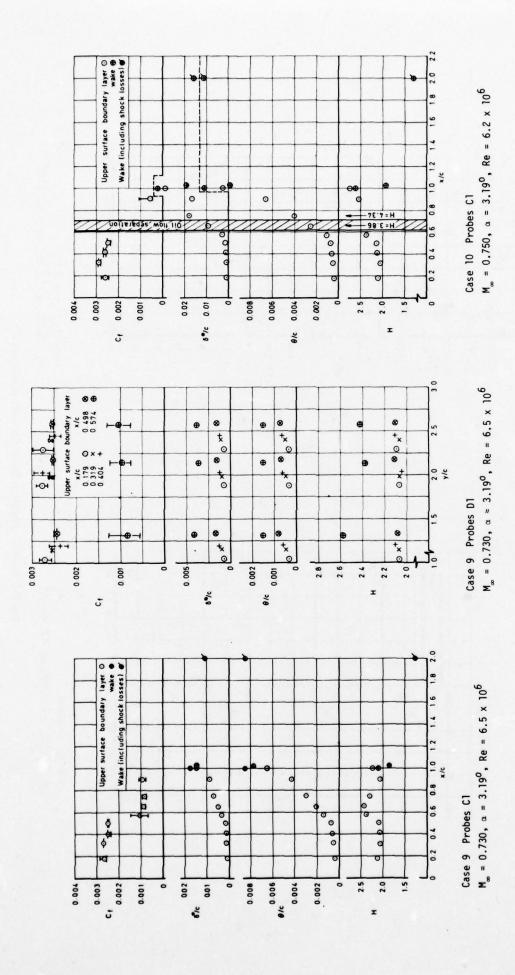
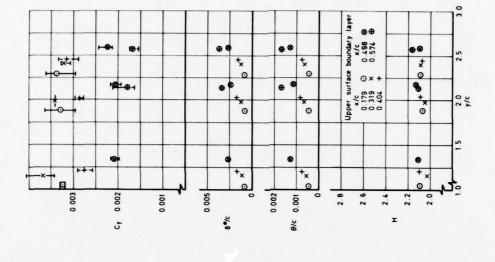


Fig 6.6 (contd) Boundary layer and wake parameters



0 0

0.02

6% 0.01

0

0.008

Upper surface boundary layer ⊙ wake ⊕ Wake (including shock losses) €

ф ф

101

0.003

0.001

7000

Case 12 Probes D $M_{\infty} = 0.730, \alpha = 3.19^{0}, Re = 2.7 \times 10^{6}$

Case 12 Probes C $M_{\infty}=0.730, \ \alpha=3.19^{0}, \ Re=2.7 \times 10^{6}$

0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 x/c

0

0

9/6

0

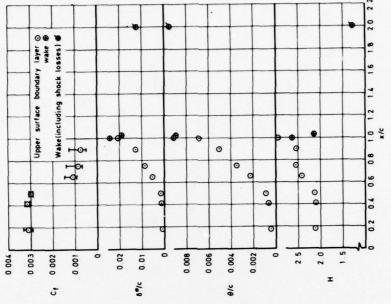
0

000

I

2.5

Fig 6.6 (contd) Boundary layer and wake parameters



ţ,

*

0.002

100.0 3/8

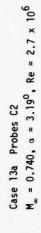
Upper surface boundary layer x/c x/c x/c 0179 © 0.498 © 0.319 × 0.574 © 0.404 W

C+ 0.002

100 0

0.005

9.4



Case 13 Probes D $M_{\infty} = 0.745$, $\alpha = 3.19^{0}$, Re = 2.7 x 10^{6}

* +x 0 • * 0

t_x o

I

Fig 6.6 (concld) Boundary layer and wake parameters

7. PRESSURE DISTRIBUTIONS FOR AIRFOIL NAE 75-036413: 2 AT REYNOLDS NUMBERS FROM 14 TO 30 MILLION

submitted by

High Speed Aerodynamics Laboratory, NAE/NRC, Canada

This is a 13% thick section designed for a lift coefficient of 0.36 at a Mach number of 0.75, but with the constraint that the lower surface Mach number must not exceed 0.93. The data comprise pressure distributions with trailing edge pressure, wake drag, aerodynamic coefficients from balance measurements as well as pressure integration and floor and ceiling pressure distributions.

1. Airfoil

| 1.1 Airfoil designation | NAE 75-036-13:2 (also DHC JJK 13) |
|-------------------------|---|
| 1.2 Type of airfoil | Low lift, near shockless, supercritical |
| 1.2.1 airfoil geometry | Fig. 7.1, Table 7.1 |
| nose radius | r/c ~ 2.2% |
| maximum thickness | t/c = 13% |
| base thickness | 0 |

1.2.2 design condition

| Potential flow, dire | ect met | hod | | |
|---|---------|-------------------|------|-----|
| $M_d = 0.75 \ C_{-}$ | (lower | surface) > | C* + | 0.2 |
| $M_{d} = 0.75$ $C_{L_{d}} = 0.36$ $C_{p_{min}}$ | | | Р | |
| T.E. angle ≈ 15° | | | | |
| Viscous calcs for Re | = 20 : | x 10 ⁶ | | |

design pressure distribution

1.3 Additional remarks Buffet free operation required up to M=M_d+0.05 $$^{\rm C}_{\rm L}$^{=1.5}$ $^{\rm C}_{\rm L}_{\rm d}$

1,4 References on airfoil

1, 2

2. Model Geometry

| 2.1 Chord length | 0.254 m |
|--|---|
| 2.2 Span | 0.381 m |
| 2.3 Actual model co-ordinates and accuracy | Table 7.2 Y in Table 7.2 obtained by cubic spline fit to values given in Table 7.1 |
| 2.4 Maximum thickness | t/c = 13% |
| 2.5 Base thickness | 0.1% chord |
| 2.6 Additional remarks | surface finish ≰ 0.25 µm theoretical shape altered after 95% chord to accommodate finite TE |
| 2.7 References on model | 2 |

2. Wind tunnel

| 3.1 Designation | NAE 5-ft x 5-ft trisonic W/T with 2-D insert |
|------------------------------|--|
| 3.2 Type of tunnel | Blowdown |
| 3.2.1 stagnation pressure | 2 - 11 bars |
| 3.2.2 stagnation temperature | 293 K, max drop ~5K during a run |
| 3.2.3 humidity/dew point | 0.0002 kg H ₂ O/Kg air |
| 3.3 Test section | Rectangular, Fig. 7.2 |
| 3.3.1 dimensions | 0.38m x 1.52m |
| 3.3.2 type of walls | Perforated top and bottom 20.5% porosity 412.7mm normal holes at 26.4 mm spacing |

| | 3.4 Flow field (empty test section) | |
|-----|---|--|
| | 3.4.1 reference static pressure | at sidewall, 7.7 chord upstream of model LE |
| | 3.4.2 flow angularity | not determined |
| | 3.4.3 Mach no. distribution | Fig. 7.3 |
| | 3.4.4 pressure gradient | Fig. 7.3 |
| | 3.4.5 turbulence/noise level | free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.008 \text{ at } M_{\infty} = 0.8$ |
| | 3.4.6 side wall boundary layer | δ* < 2.5 mm |
| | | $\frac{2 \delta^*}{R} \leqslant 0.013$ |
| | | |
| | 3.5 Additional remarks | sidewall suction over an area 1.8x2.4 chord around model |
| | 3.6 References on wind tunnel | 3,4 |
| | | |
| | | |
| | Tests | |
| | 4.1 Type of measurements | Force balance |
| | • | surface pressure |
| | | wake pitot pressure |
| | 4.2 Tunnel/model dimenstions | |
| | <pre>4.2.1 height/chord ratio 4.2.3 width/chord ratio</pre> | 6/1 1.5/1 |
| | | |
| | 4.3 Flow conditions included in present data base | Fig. 7.4 and Table 7.3 |
| | 4.3.1 angle of attack | 0 to 4° for $M_{\infty} = 0.75$ 2° for other M_{∞} |
| | | 2° for other M_{∞} |
| | 4.3.2 Mach number | 0.5 to 0.84 |
| | 4.3.3 Reynolds number | 14, 25 and 30 x 10^6 based on 10" chord. |
| | 4.3.4 transition | free transition |
| | -position of free transition | Not established |
| | -transition fixing 4.3.5 temperature equilibrium | Yes |
| | | |
| | 4.4 Additional remarks | |
| | 4.5 Reference on tests | 2 |
| · . | Instrumentation | |
| | 5.1 Surface pressure measurements | |
| | 5.1.1 pressure holes | 80 |
| | -size | φ 0.37 mm, depth/diameter ratio ~1.7 |
| | -spanwise station(s) | centre span |
| | -chordwise positions | Table 7.2 |
| | 5.1.2 type of transducers and scanning devices | Two D9 scanivalves with 200 psia Kulite VQS-500-200A |
| | 5.1.3 other | scan rate for 5.1.2 20 ports/sec. |
| | 5.2 Wake measurements | |
| | 5.2.1 type/size of instrument(s) | Traversing probe, see Fig. 7.2 OD/ID = 1.6/0.51 mm |
| | 5.2.2 streamwise position(s) | 1.5 x chord downstream T.E. |
| | 5.2.3 type of transducers and | 50 psid Statham PM 131 TC |
| | scanning devices | |
| | | |

| 5.5 Flow visualisatio | Flow visuali | sation |
|-----------------------|--------------|--------|
|-----------------------|--------------|--------|

| - | - | 2 | surface | £1 and |
|----|---|---|---------|--------|
| Э. | | | Surface | LIOM |

at $C_N = 0.36$, M = 0.75, 0.8, $Re = 25 \times 10^6$

5.7 Additional remarks

Two three-component side wall balances for

force measurements

5.8 References on instrumentation

6. Data

6.1 Accuracy (wall interference excluded)

6.1.1 angle of attack setting

6.1.2 free stream Mach number:

-setting -variation during one

pressure scan

Generally:

± 0.02°

± 0.003

± 0.003

 $\Delta C_{N_{\rm P}} < \pm 0.005$ $\Delta C_{N_B} < \pm 0.005$

 $\Delta C_{\mathrm{Xp}} < \pm 0.0005$ $\Delta C_{XB} < \pm 0.0005$

 $\Delta C_{Mp} < \pm 0.0005$ $\Delta C_{MB} < \pm 0.0005$

 $\Delta C_{DW} < \pm 0.0015$

6.2 Wall interference corrections (indicate estimated accuracy)

6.2.1 angle of attack

6.1.6 repeatability

 $\Delta \alpha^{\circ} \sim -1.2 C_{L}$ at M = 0.75

(estim. for $P_U = 1.5$, $P_L = 0.5$)

6.2.2 blockage (solid/wake)

(lift)

Negligible $\Delta M \approx -0.013 C_{L}$ at M = 0.75

(estim. for $P_U = 1.5$, $P_L = 0.5$)

6.2.3 streamline curvature (lift)

Negligible

6.2.4 other

6.2.5 remarks

Results from pressure measurements with wall mounted rails, with pressure ports 4.8 cm from the wall, are included for evaluating wall corrections. Tables 7.4 - 7.20

6.2.6 references on wall interference correction

6.3 Presentation of data

6.3.1 aerodynamic coefficients

6.3.2 surface pressures

Table 7.3

5, 6

Table 7.4-7.20 Figure 7.5-7.21

6.3.3 boundary layer quantities

6.3.4 wall interference corrections

included ?

No

6.3.5 corrections for model

deflection

No

6.3.6 empty test section calibration

taken into account ?

6.3.7 other correction included ?

6.3.8 additional remarks

wake drag data are those obtained from probe on c only

6.4 Were tests carried out in different facilities on the current airfoil ?
If so, what facilities. Are data included in the present data base ?

A Secular Secu

6.5 To be contacted for further information on tests

D.J. Jones, High Speed Aerodynamics Laboratory, NAE/NRC,

Montreal Road,

Ottawa, Ontario, Canada KlA OR6

7. References

1.J.J. Kacprzynski Low lift supercritical 13% thick airfoil (CONFIDENTIAL)
NRC/NAE LTR-HA-19 January, 1974

2.J.J. Kacprzynski Wind Tunnel test results of 2-D flow past the supercritical airfoil DHC JJK 13.

NRC/NAE LTR-HA-5x5/0089 February, 1975

3.L.H. Ohman et al The NAE high Reynolds number 15in x 16in two-dimensional test facility. NRC/NAE LTR-HA-4 April, 1970

4.L.H. Ohman

The NAE 15in x 60in two-dimensional test facility: new features and some related observations, results of new centre line calibration at 20.5% porosity.

NRC/NAE LTR-HA-15 March, 1973

5.D.J. Peake,
A.J. Bowker

A.J. Bowker

A.J. Bowker

A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel NRC/NAE LTR-HA-11 January, 1973

6.M. Mokry et al Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC/NAE LR-575 February, 1974

8. List of symbols

tunnel width = model span B C model chord Н tunnel height М local Mach number Ma free stream Mach number P local static pressure P free stream static pressure PO free stream total pressure Re Reynolds number based on model chord porosity factor for upper and lower walls (ceiling and floor Pu, PL of W/T). See reference 6 free stream dynamic pressure q., Q V/U relative sidewall suction; velocity ↓ sidewall free stream velocity p - p pressure coefficient Cp, CP CN, CN normal force coefficient CX, CX chord force coefficient CM, CMC4 pitching moment coefficient about 1/4 chord CL lift coefficient CDP pressure drag coefficient CDW wake drag coefficient streamwise coordinate, X model origin: LE W/T origin: balance C = 0.4 model X/c geometric angle of attack, angle between chordline and tunnel a_g centre line.

subscript P refers to pressure data

B balance data
d design data
m to model data

| × | * | × | Y | | |
|--------------|--------------------------------|--------------|--------------------------------|--------------|---------------|
| | | 0.1126026511 | -6.0457400717 | | |
| 1.0000000000 | 0.0 | 0.1006855965 | -0.0437880531 | | |
| 0.9588627219 | | 0.0893458126 | -0.0417665169 | | |
| 0.9497243166 | | 0.0786110759 | -0.0396950990 | | |
| 0.9397662282 | -0.0039974563 | 0.0685327649 | -0.0375878215 | | |
| 0.9290056229 | | 0.0591621995 | -0.0354067944 | | |
| 0.9174426794 | -0.0057985671 | 0.0504946497 | -0.0331038274 | X | Y |
| 0.9050719142 | -0.0068275258 | 0.0425026417 | -0.0306794271 -0.0281558484 | *** | |
| 0.8918876648 | | 0.0285677314 | -0.0255403407 | 0.5523374677 | 0.01.53434992 |
| 0.8778962493 | | 0.0226559639 | -0.0228067972 | 0.5711979270 | 0.0645132651 |
| 0.8631553054 | | 0.0174276233 | -0.0199506432 | 0.5899974704 | 0.6635518432 |
| 0.8477554917 | | 0.0128520094 | -0.0109846304 | 0.6272829175 | 0.66.25036743 |
| 0.6317796376 | | 0.0089095235 | -0.0139730759 | 0.6456207633 | 0.0603144020 |
| 0.8153115511 | | 0.0056819320 | -0.0109855086 | 0.6636392474 | 0.0591498390 |
| 0.7984392643 | | 0.0032637711 | -0.0079333000 | 0.6813043952 | 0.0578714125 |
| 0.7812631726 | | 0.0015838144 | -U.0047051162 | 0.6986052990 | 0.0564346239 |
| 0.7464876771 | | 0.0005211232 | -0.0013293617 | 0.7155507803 | 0.0548132360 |
| 0.7291263342 | | 0.0001209378 | 0.0055720881 | 0.7321501374 | 0.4530047454 |
| 0.7118707895 | | 0.0007786751 | 0.0089869462 | 0.7484040260 | 0.0510125272 |
| 0.6946936250 | | 0.0020155311 | 0.0123039149 | 0.7643131614 | 0.0488414094 |
| 0.6774995327 | | 0.0038598776 | 0.0154602826 | 0.7798804045 | 0.0465055369 |
| 0.6601991057 | | 0.0063722730 | 0.0183953494 | 0.7951023579 | 0.0440255255 |
| 0.6427395344 | | 0.0096784197 | 0.0211086795 | 0.8099714518 | 0.0414229706 |
| 0.6250831485 | | 0.0138361417 | 0.0237286985 | 0.8244790435 | 0.0387208425 |
| 0.6071890593 | | 0.0187317729 | 0.0263369754 | 0.8386152983 | 0.0359458551 |
| 0.5890001655 | -0.0550666824 | 0.0242959857 | 0.0288453512 | 0.8523659110 | 0.0331282951 |
| 0.5705260038 | -0.0564164296 | 0.0305774808 | 0.0311898650 | 0.8657134175 | 0.0302999951 |
| 0.5518553853 | -0.0576529652 | 0.0454972909 | 0.0355092548 | 0.8786356449 | 0.0274950266 |
| 0.5330401659 | | 0.0541231595 | 0.0375852734 | 0.9030751586 | 0.0247504972 |
| 0.5141375065 | | 0.0634580851 | 0.0396570191 | 0.9145035148 | 0.0195598528 |
| 0.4951956868 | | 0.0734440088 | 0.0417036340 | 0.9253491759 | 0.0171405934 |
| 0.4762558341 | | 0.0840565562 | 0.0436983742 | 0.9355786443 | 0.0148491189 |
| 0.4573546648 | | 0.0952787399 | 0.0456231311 | 0.9451606870 | 0.0126925260 |
| | -0.0634485483 | 0.1070998311 | 0.0474640541 | 0.9540667534 | 0.0106776990 |
| | -0.0637767315 | 0.1195113659 | 0.0492120497 | 1.0000000000 | 0.0 |
| 0.3828586936 | | 0.1325066090 | 0.0508648530 | | |
| | -0.0639030337 | 0.1460770369 | 0.0524319485 | | |
| | -0.0636887550 | 0.1601989865 | 0.0539268367 | | |
| 0.3287088275 | | 0.1748388410 | 0.0553531088 | | |
| 0.3110473156 | -0.0627698302 | 0.1899665594 | 0.0567063503 | | |
| 0.2936185002 | -0.0620881133 | 0.2055557370 | 0.0579809770 0.0591710359 | | |
| 0.2764459848 | -0.0612707362 | 0.2380197048 | 0.0602709502 | | |
| | -0.0603280589 | 0.2548545599 | 0.0612763686 | | |
| | -0.0592708625 | 0.2720716596 | 0.0621936135 | | |
| | -0.0581104532 | 0.2896448970 | 0.0630438924 | | |
| | -0.0568587743 | 0.3075250983 | 0.0638387799 | | |
| | -0.0555280671 | 0.3256675005 | 0.0645711422 | | |
| | -0.0541263260 | 0.3440346122 | 0.0652311444 | | |
| | -0.0526405424 -0.0510608107 | 0.3625930548 | 0.0658095479 | | |
| | -0.0493831933 | 0.3813108206 | 0.0662971735 | | |
| | -0.0476080589 | 0.4001580477 | 0.0666856766 | | |
| 001230199290 | | 0.4191055894 | 0.0669666529 | | |
| | | 0.4381252527 | 0.0671324134 | | |
| | | 0.4571908116 | 0.0671758652 | | |
| | | 0.4762765169 | 0.0670903325 | | |
| | | 0.4953578115 | 0.0668703318 | | |
| | | 0.5144102573 | 0.0660050511 | | |
| | | 0.5334110260 | 0.0000030311 | | |

| HERED | SURFACE | TABLE | 7.2 MOI | DEL GE | OMETRY | AND | PRESSURE | HOLE LOCAT | IONS | (1 | NCH UN | ITS). |
|-------|-----------|--------|---------|--------|--------|-----|----------|------------|--------|-------|--------|---------|
| HOLE | STATION X | x m | Y d | Y m | Y _m-Y | d | HOLE | STATION X | x m | Y d | Y m | Y m-Y d |
| 1 | .0005 | .0000 | .0400 | .0335 | - | | 17 | 2.000 | 1.9989 | .5753 | .5758 | .0005 |
| 2 | .050 | .0475 | .1660 | .1689 | .002 | 9 | 18 | 2.250 | 2.2492 | .5940 | .5943 | .0003 |
| 3 | .100 | .0988 | .2126 | .2142 | .001 | 6 | 19 | 2.375 | 2.3739 | .6023 | .6024 | .0001 |
| 4 | .200 | .1982 | .2687 | .2697 | .001 | 0 | 20 | 2.750 | 2.7488 | .6234 | .6237 | .0003 |
| 5 | .300 | .2994 | . 3097 | .3106 | .000 | 9 | 21 | 3.000 | 2.9992 | .6351 | .6358 | .0007 |
| 6 | .400 | .3980 | .3401 | .3409 | 000 | 8 | 22 | 3.250 | 3.2485 | .6454 | .6453 | .0005 |
| 7 | .500 | .4989 | .3660 | .3670 | .001 | 0 | 23 | 3.500 | 3.4986 | .6542 | .6546 | 0004 |
| 8 | .600 | .5985 | .3887 | .3900 | .001 | 3 | 24 | 3.750 | 3.7486 | .6614 | .6614 | .0000 |
| 9 | .700 | .6983 | .4098 | .4099 | .000 | 1 | 25 | 4.000 | 3.9993 | .6668 | .6669 | .0001 |
| 10 | .800 | .7982 | .4292 | .4301 | .000 | 9 | 26 | 4.250 | 4.2484 | .6703 | .6702 | 0001 |
| 11 | .900 | .8967 | .4468 | .4481 | .001 | 3 | 27 | 4.500 | 4.4987 | .6717 | .6717 | 0000 |
| 12 | 1.000 | .9987 | .4636 | .4643 | .000 | 7 | 28 | 4.750 | 4.7490 | .6710 | .6709 | 0001 |
| 13 | 1.200 | 1.1991 | . 4927 | .4932 | .000 | 5 | 29 | 5.000 | 4.9987 | .6680 | .6677 | 0003 |
| 14 | 1.400 | 1.3989 | .5173 | .5181 | .000 | 8 | 30 | 5.200 | 5.1997 | .6638 | .6632 | 0006 |
| 15 | 1.600 | 1.5991 | .5390 | .5396 | .000 | 6 | 31 | 5.400 | 5.3980 | .6580 | .6575 | 0005 |
| 16 | 1.800 | 1.7984 | .5581 | .5588 | .000 | 7 | 32 | 5.600 | 5.5989 | .6503 | .6497 | 0006 |

The state of the s

| | | | | | | LOWER | SURFACE | | | | |
|------|----------------|------------------------|--------|--------------------------------|------------------------|------------------|---------------------|---------|--------|------|-------|
| | | | | | | HOLE | X NOITATE | x m | Y d | Y m | Y Y |
| UF | PPER SURFA | CE | | | | | | | | | |
| 101 | D COLUMN TON N | | ,, | y y | m-Yd | 53 | .050 | .0479 | 0994 | 1016 | 0022 |
| iOL. | E STATION X | x m | Y d | n. | m d | 54 | .100 | .1010 | 1496 | 1498 | 0002 |
| - | | | | | | - 55 | .200 | .1997 | 2141 | 2135 | .0006 |
| 3 | 5.800 | 5.7989 | .6409 | .6405 | 0004 | 56 | .300 | .2988 | 2610 | 2603 | .0007 |
| 4 | 6.000 | 5.9987 | .6300 | .6299 | 0001 | 57 | .400 | . 3995 | 2983 | 2978 | .0015 |
| 5 | 6.200 | 6.1988 | .6185 | .6182 | 0003 | 58 | .500 | .5003 | 3297 | 3286 | .0011 |
| 6 | 6.400 | 6.3992 | .6067 | .6062 | 0005 | 59 | .750 | .7490 | 3894 | 3882 | .0012 |
| 7 | 6.600 | 6.5986 | .5941 | .5935 | 0006 | 60 | 1.000 | .9995 | 4366 | 4356 | .0010 |
| 8 | 6.800 | 6.7997 | .5797 | .5790 | 0013 | 61 | 1.500 | 1.4991 | 5085 | 5069 | .0016 |
| 9 | 7.000 | 6.9990 | .5632 | .5627 | 0005 | Bal. P | ins 1.750 | | | | |
| 0 | 7.200 | 7.1982 | .5437 | .5434 | 0003 | 62 | 2.000 | 1.9976 | 5592 | 5582 | .0010 |
| 1 | 7.400 | 7.3991 | .5208 | .5209 | .0001 | 63 | 2.500 | 2.5006 | 5974 | 5962 | .0012 |
| 2 | 7.600 | 7.5998 | . 4945 | .4950 | .0005 | 64 | 3.000 | 2.9974 | 6234 | 6227 | .001 |
| 3 | 7.800 | 7.7997 | .4649 | .4659 | .0010 | 65 | 3.500 | 3.4996 | 6374 | 6367 | .000 |
| 4 | 8.000 | 7.9971 | | | 0023 | 66 | 4.000 | 3.9998 | 6379 | 6375 | .000 |
| 5 | 8.200 | | | .3965 | .0006 | 67 | 4.500 | 4.4983 | 6261 | 6255 | .000 |
| 6 | 8.400 | 8.3997 | . 3567 | .3573 | .0006 | 68 | 5.000 | 4.9984 | 6056 | 6049 | .001 |
| 7 | 8.600 | 8.5985 | | | .0005 | 69 | 5.625 | 5.6233 | 5698 | 5697 | .000 |
| 8 | 8.800 | 8.7994 | .2721 | .2729 | .0008 | 70 | 6.000 | 5.9997 | 5420 | 5419 | .0001 |
| 9 | 9.000 | 8.9988 | | | .0009 | Bal. Pr | ns 6.250 | | | | |
| 0 | 9.250 | 9.2486 | | | .0013 | 71 | 6.500 | 6.4988 | 4874 | 4872 | .0002 |
| 1 | 9.500 | 9.4988 | | .1180 | .0017 | 72 | 7.000 | 6.9991 | 4033 | 4030 | .0003 |
| 2 | 10.000 | 10.0010 | | | | 73 | 7.250 | 7.2491 | 3513 | 3512 | 0001 |
| | | | | | | 74 | 7.500 | 7.4988 | 2976 | 2977 | 0001 |
| | | | | | | 75 | 7.750 | | | 2464 | |
| | | | | | | 76 | 8.000 | 7.9987 | 2004 | 2007 | 0003 |
| | | | | | | 77 | 8.250 | | | 1602 | |
| | | | | | | 78 | 8.500 | | | 1251 | |
| | | | | | | 79 | 9.000 | | | 0726 | |
| | | | | | | 80 | 9.500 | | | 0342 | |
| | | TABLE | 7.3 | | | T.E. | 10.000 | 10.0011 | | | |
| | | AERODYNAMI | | IC IENTS | | | | | | | |
| | TABLE FIG. | M _m Rex10-6 | | C _{Np} C _M | SSURE C _X P | - c _N | BALANCE B CMB CX | CDW | RUN SC | *** | |

| | A | ERODYNAMIC | COEFFI | | | | | BALANCE | | | BALANCE | | | | | |
|------|---|---|---|---|---|-----------------------------|-----------------------------|--|--|--|-----------------------------|-----------------------------|--|--|--|--|
| FIG. | M _∞ | Rex10-6 | a; | CNP | C _{MP} | CXp | CNB | C _{MB} | C _{XB} | CDW | RUN | SCAN | | | | |
| 5 | .511 | 14.35 | 1.989 | 0.335 | -0.0416 | -0.00669 | 0.324 | -0.0431 | -0.001 | 0.00792 | 4979 | 2 | | | | |
| 6 | .699 | 14.34 | 1.994 | 0.366 | -0.0426 | -0.00547 | 0.359 | -0.0450 | -0.002 | -0.00906 | 4976 | 3 | | | | |
| 7 | .754 | 13.84 | 1.994 | 0.389 | -0.0408 | -0.00530 | 0.381 | -0.0454 | 0.000 | 0.00922 | 4974 | 5 | | | | |
| 8 | .794 | 14.29 | 1.474 | 0.351 | -0.0596 | 0.00416 | 0.328 | -0.0518 | 0.006 | 0.01084 | 4970 | 4 | | | | |
| 9 | .702 | 25.53 | 1.999 | 0.381 | -0.0477 | -0.00557 | 0.374 | -0.0480 | -0.003 | 0.00850 | 4944 | 2 | | | | |
| 10 | .754 | 25.18 | -0.047 | 0.102 | -0.0498 | 0.00295 | 0.096 | -0.0505 | 0.010 | 0.00907 | 4936 | 1 | | | | |
| 11 | .755 | 25.41 | 0.962 | 0.246 | -0.0501 | 0.00125 | 0.237 | -0.0506 | 0.007 | 0.00859 | 4936 | 3 | | | | |
| 12 | .756 | 25.15 | 1.485 | 0.326 | -0.0489 | -0.00128 | 0.321 | -0.0495 | 0.003 | 0.0091 | 5001 | 1 | | | | |
| 13 | .757 | 25.29 | 1.742 | 0.368 | -0.0485 | -0.00243 | 0.359 | -0.0491 | 0.001 | 0.00893 | 5001 | 2 | | | | |
| 14 | .757 | 25.37 | 2.011 | 0.403 | -0.0476 | -0.00442 | 0.399 | -0.0484 | -0.002 | 0.00910 | 5001 | 3 | | | | |
| 15 | .754 | 25.37 | 2.513 | 0.461 | -0.0438 | -0.00889 | 0.452 | -0.0445 | -0.005 | 0.00996 | 4937 | 3 | | | | |
| 16 | .751 | 25.14 | 3.034 | 0.534 | -0.0394 | -0.01398 | 0.521 | -0.0404 | -0.010 | 0.01245 | 4938 | 1 | | | | |
| 17 | .752 | 25.30 | 4.057 | 0.659 | -0.0410 | -0.01832 | 0.631 | -0.0372 | -0.015 | 0.01967 | 4938 | 2 | | | | |
| 18 | .806 | 24.87 | 1.465 | 0.338 | -0.0572 | 0.00366 | 0.333 | -0.0592 | 0.008 | 0.01208 | 4999 | 1 | | | | |
| 19 | .841 | 25.19 | 1.001 | 0.113 | -0.0043 | 0.02548 | 0.097 | -0.0097 | 0.028 | 0.03481 | 4951 | 3 | | | | |
| 20 | .756 | 29.69 | 2.013 | 0.400 | -0.0478 | -0.00401 | 0.388 | -0.0476 | -0.001 | 0.01012 | 4982 | 1 | | | | |
| 21 | .801 | 29.96 | 2.000 | 0.393 | -0.0538 | 0.00073 | 0.374 | -0.0521 | 0.005 | 0.01165 | 4986 | 1 | | | | |
| | 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | FIG. M _∞ 5 .511 6 .699 7 .754 8 .794 9 .702 10 .754 11 .755 12 .756 13 .757 14 .757 15 .754 16 .751 17 .752 18 .806 19 .841 20 .756 | FIG. M _m Rex10-6 5 .511 14.35 6 .699 14.34 7 .754 13.84 8 .794 14.29 9 .702 25.53 10 .754 25.18 11 .755 25.41 12 .756 25.15 13 .757 25.29 14 .757 25.37 15 .754 25.37 16 .751 25.14 17 .752 25.30 18 .806 24.87 19 .841 25.19 20 .756 29.69 | FIG. M _∞ Rex10-6 α ⁰ / ₃ 5 .511 14.35 1.989 6 .699 14.34 1.994 7 .754 13.84 1.994 8 .794 14.29 1.474 9 .702 25.53 1.999 10 .754 25.18 -0.047 11 .755 25.41 0.962 12 .756 25.15 1.485 13 .757 25.29 1.742 14 .757 25.37 2.011 15 .754 25.37 2.011 15 .754 25.37 2.513 16 .751 25.14 3.034 17 .752 25.30 4.057 18 .806 24.87 1.465 19 .841 25.19 1.001 20 .756 29.69 2.013 | 5 .511 14.35 1.989 0.335 6 .699 14.34 1.994 0.366 7 .754 13.84 1.994 0.389 8 .794 14.29 1.474 0.351 9 .702 25.53 1.999 0.381 10 .754 25.18 -0.047 0.102 11 .755 25.41 0.962 0.246 12 .756 25.15 1.485 0.326 13 .757 25.29 1.742 0.368 14 .757 25.37 2.011 0.403 15 .754 25.37 2.011 0.403 15 .754 25.37 2.513 0.461 16 .751 25.14 3.034 0.534 17 .752 25.30 4.057 0.659 18 .806 24.87 1.465 0.338 19 .841 25.19 1.001 0.113 20 .756 29.69 2.013 0.400 | FIG. M _∞ Rex10-6 | FIG. M _∞ Rex10-6 | FIG. M _∞ Rex10-6 α_9° C_{N_p} | FIG. M_{∞} Rex10-6 $\alpha_{\rm H}^{\circ}$ $C_{\rm Np}$ $C_{\rm Np}$ $C_{\rm Np}$ $C_{\rm Xp}$ $C_{\rm Np}$ $C_{\rm Np$ | FIG. M_{∞} Rex10-6 $\alpha_{\rm H}^{\circ}$ $C_{\rm N_{\rm P}}$ $C_{\rm N_{\rm$ | FIG. M _m Rex10-6 | FIG. M _w Rex10-6 | | | | |

```
SURFACE FRESSURE MEASUREMENTS
RUN NUMBER = 4979
SCAN NUMBEF = 2
CONFIGURATION = DHCJJK
TEST MACH NUMBER = 0.511
FEYNCLDS NUMBER = 0.1435E 08
INCIDENCE(NORTH) = 1.939
PO = 81.84PSIA
Q = 12.50PSI
V/U (SIDEWALL) = 0.0052
CN = 0.335
CX =-.00569
CMC4 = 0.3354
CDP = 0.0050
```

| ORIFICE | X/C | | M(LOCAL) | | | | | |
|----------|--------|--------------------|----------|--------------------|------------------|--------|--------|----------|
| TE HPPER | 1.0000 | 0.2395 | 0.445 | ORIF | ICE X | / C | CP ! | LIADCALI |
| 51 | 0.9500 | 0.1311 | 0.476 | 7 | 0.60 | 00 -0 | . 2560 | 0.579 |
| 50 | 0.9250 | 0.0706 | 0.494 | 7 | | | .2369 | 0.575 |
| 49 | 0.9000 | 0.0101 | 0.510 | 7: | | | .1131 | 0.543 |
| 47 46 | 0.8600 | -0.1096 -0.1619 | 0.542 | 7 | | | .0281 | 0.521 |
| 45 | 0.8200 | -0.2163 | 0.570 | 7 | . 0.75 | 00 0 | .0429 | 0.503 |
| 43 | 0.7800 | -0.3197 | 0.596 | 7 ! | | 50 0 | .1148 | 0.483 |
| 42 | 0.7600 | -0.3571 | 0.505 | 7 | | | .1602 | 0.471 |
| 41 | 0.7400 | -0.3739 | 0.610 | 7 | | | .1895 | 0.462 |
| 4) | 0.7200 | -0.3664 | 0.614 | 7 | | | .2091 | 0.456 |
| 39 | 0.7000 | -0.3926 | 0.615 | 79 | | | 2193 | 0.453 |
| 38 | 0.6800 | -0.3976 | 0.616 | TE LOWER | | | .2266 | 0.451 |
| 37 | 0.6600 | -0.3914 | 0.615 | . C FOME. | 1.00 | 00 0 | . 2395 | 0.445 |
| 36 | 0.6400 | -0.3877 | 0.615 | | | | | |
| 35 | 0.6200 | -0.3962 | 0.617 | | | | | |
| 34 | 0.6000 | -0.4098 | 0.619 | | | | | |
| 33 32 | 0.5800 | -0.4271 -0.4390 | 0.523 | | | | | |
| 31 | 0.5400 | -0.4465 | 0.530 | | | | | |
| 30 | 0.5200 | -0.4478 | 0.630 | STATIC | PRESSURES | AT CFI | LING A | ND FLOOR |
| 29 | 0.5000 | -0.4575 | 0.631 | | | | | |
| 28 | 0.4750 | -0.4641 | 0.634 | | CEILING | | FLOO | R |
| 27 | 0.4500 | -0.4646 | 0.635 | X/C | CP | M | CP | M |
| 26 | 0.4250 | -0.4695 | 0.635 | -4.5000 | 0.003 | 0.514 | 0.007 | |
| 25 | 0.4000 | -0.4660 | 0.634 | -4.2000 | 0.006 | 0.513 | 0.006 | |
| 24 | 0.3750 | -0.4652 | 0.534 | -3.9000 | -0.002 | 0.516 | 0.005 | |
| | 0.3500 | -0.4712 | 0.635 | -3.5000 | 0.006 | 0.513 | 0.002 | |
| 22 | 0.3250 | -0.4696 | 0.635 | -3.3000 | 0.005 | 0.514 | 0.006 | |
| 21 | 0.3000 | -0.4770 | 0.638 | -3.0000 | 0.001 | 0.514 | 0.005 | |
| 19 19 | 0.2375 | -0.5164 | 0.644 | -2.7000 -2.4000 | -0.001 | 0.515 | 0.015 | |
| 17 | 0.2250 | -0.5387 | 0.651 | -2.1000 | -0.003 | 0.516 | 0.011 | |
| 16 | 0.1800 | -0.5613 | 0.656 | -1.8000 | 0.002 | 0.515 | 0.012 | |
| 15 | 0.1600 | -0.5867 | 0.662 | -1.5000 | -0.015 | 0.519 | 0.019 | |
| 14 | 0.1400 | -0.6121 | 0.668 | -1.3500 | -0.009 | | -0.005 | |
| 13 | 0.1200 | -0.6306 | 0.672 | -1.2000 | -0.011 | 0.517 | 0.015 | |
| 12 | 0.1000 | -0.6795 | 0.685 | -1.0500 | -0.007 | 0.517 | 0.020 | 0.509 |
| 11 | 0.0900 | -0.6805 | 0.686 | -0.9000 | -0.000 | 0.517 | 0.016 | |
| 10 | 0.0800 | -0.7046 | 0.691 | -0.7500 | -0.010 | 0.517 | 0.017 | |
| 9 | 0.0700 | -0.7083 | 0.692 | -0.6500 | -0.015 | 0.519 | 0.015 | |
| 8 | 0.0600 | -0.7401 | 0.701 | -0.5500 | -0.011 | 0.518 | 0.017 | |
| 7 | 0.0500 | -0.8663 | 0.734 | -0.4500 -0.3500 | -0.011 -0.017 | 0.518 | 0.012 | |
| 5 | 0.0300 | -1.0001 | 0.761 | -0.2500 | -0.017 | 0.518 | 0.011 | |
| 3 | 0.0100 | -1.0077 | 0.765 | -0.1500 | -0.017 | 0.518 | 0.020 | |
| 2 | 0.0050 | -0.6179 | 0.671 | -0.0500 | -0.017 | 0.519 | 0.025 | |
| 1 | 0.0000 | 0.9098 | 0.138 | 0.0500 | -0.019 | 0.519 | 0.029 | |
| 53 | 0.0050 | 0.8811 | 0.205 | 0.1500 | -0.021 | 0.518 | 0.023 | |
| 54 | 0.0100 | 0.6324 | 0.317 | 0.2500 | -0.019 | 0.518 | 0.029 | 0.507 |
| 55 | 0.0200 | 0.3384 | 0.417 | 0.3500 | -0.017 | 0.518 | 0.024 | |
| 5.5 | 0.0300 | 0.1674 | 0.468 | 0.4500 | -0.019 | 0.518 | 0.027 | |
| 57 | 0.0400 | 0.1021 | 0.487 | 0.5500 | -0.019 | 0.520 | 0.021 | |
| 59 | 0.0500 | -0.0256 | 0.503 | 0.6500 | -0.012 | 0.516 | 0.026 | |
| 59 62 | 0.0750 | -0.0256 | 0.562 | 0.7500 | -0.013 -0.012 | 0.517 | 0.001 | |
| 63 | 0.2500 | -0.2124 | 0.571 | 1.0500 | -0.012 | 0.515 | 0.024 | |
| 54 | 0.3000 | -0.2410 | 0.579 | 1.2000 | -0.006 | 0.516 | 0.019 | |
| 65 | 0.3500 | -0.2655 | 0.585 | 1.3500 | -0.016 | 0.518 | 0.021 | |
| 6.6 | 0.4000 | -0.2678 | 0.585 | 1.5000 | -0.011 | 0.516 | 0.023 | |
| 67 | 0.4500 | -0.2484 | 0.580 | 1.8000 | -0.008 | 0.516 | 0.018 | |
| AP | 0.5000 | -0.2385 | 0.578 | 2.1000 | -0.013 | 0.516 | 0.018 | |
| 69 | 0.5625 | -0.2396 | 0.575 | 2.4000 | 0.007 | 0.512 | 0.015 | |
| | | | | 2.1000 | -0.011 | 0.515 | 0.003 | 0.514 |
| | | | | | | | | |

The same of the sa

```
SURFACE PRESSURE MEASUREMENTS
                                                 =4976
                                RUN NUMBER
                                                                            TABLE 7.5
                                SCAN NUMBER
                                                 = 3
                                CONFIGURATION
                                                 = DHCJJK
                                TEST MACH NUMBER = 0.699
                                REYNOLDS NUMBER = 0.1434E 08
                                INCIDENCE (NORTH) = 1.994
                                                 = 65.11PSTA
                                                 = 16.07PSI
                                V/U (SIDEWALL) =0.0058
                                                 = 0.366
                                CX
                                                 =-.00547
                                CMC4
                                                 =-0.0426
                                                 = 0.3658
                                CI
                                CDP
                                                  = 0.0073
    OFIFICE
                 X/C
                         CP
                               MILOCALI
TE UPPER
             1.0000
                       3.2366
                                0.610
                                                      ORIFICE
                                                                  X/C
                                                                           CD
                                                                                 MILICALI
             0.9500
      51
                       0.1692
                                0.538
                                                         70
                                                               0.6000
                                                                       -0.3138
      50
             0.9250
                       0.1149
                                0.660
                                                               0.6500
             0.9000
                                                                        -0.2394
                                                                                  0.915
      40
                       0.0506
                                0.684
                                                         71
                                                                        -0.1363
                                                               0.7300
                                                                                  0.756
      47
             0.8600
                      -0. 1692
                                0.731
                                                         72
                                                                                  0.716
             0.8400
                      -0.1258
                                0.753
                                                         73
                                                               0.7250
                                                                        -0.0312
      45
             0.8200
                      -0.1986
                                0.781
                                                         74
                                                               0.7500
                                                                         0.0553
                                                                                  0.682
             0.7800
                      -0.3249
                                0.828
                                                         75
                                                               0.7750
                                                                         0.1312
                                                                                  0.552
      42
             0.7600
                      -0.3704
                                                         76
                                                               0.8600
                                                                         0.1756
                                                                                  0.535
                                0.347
                                                                                  0.620
                                                               0.8250
                                                                         0.2144
                      -0.4172
      41
             0.7400
                                0.864
                                                               0.9500
                                                                         0.2319
                                                                                  0.512
                                                         78
      40
             0.7200
                      -0.4481
                                0.876
                                                               0.0000
                                                                         0.2444
      39
             0.7000
                      -0.4558
                                0.879
                                                         79
                                                                                  0.607
                                                               0.9500
                                                                         0.2492
      38
             0.6800
                      -0.4549
                                0.979
                                                         80
                                                                                  0.606
                      -0.4491
                                0.876
                                                                         0.2366
      37
             0.6600
                                                  TE LOWER
                                                               1.0000
                                                                                  0.510
                                0.977
             0.6400
                      -0.4509
                      -0.4579
                                0. 380
             0.6200
                      -0.4707
      24
                                0.985
             0.6000
      23
                      -0.4976
                                0.895
             0.5800
      32
             0.5600
                      -0.5172
                                0.901
      31
             0.5400
                      -0.5409
                                0.911
                                                   STATIC PRESSURES AT CEILING AND FLOOR
             0.5200
                      -0.5490
                                0.914
      30
      20
             0.5000
                      -0.5574
                                0.919
      28
             0.4750
                      -0.5585
                                0.920
                                                            CEILING
                                                                              FLOOR
      27
             0.4500
                      -0.5671
                                0.927
                                                                              CP
                                                  X/C
                                                             CD
             0.4250
                      -0.5669
                                0.723
                                                             0.012
                                                                      0.699 0.008
                                                                                    0.701
      26
                                                 -4.5000
                                0.918
      25
                      -0.5547
                                                                      0.696
             0.4000
                                                 -4.2000
                                                             0.018
                                                                             0.013
                                                                                    0.698
                      -0.5576
      24
             0.3750
                                0.918
                                                 -3.9000
                                                             0.006
                                                                      0.702 0.016
                                                                                    0.698
      23
             0.3500
                      -0.5635
                                0.770
                                                 -3.6000
                                                                      0.698
                                                                            0.016
                                                                                    0.699
                                                             0.016
             0.3250
                      -0.5599
                                0.919
                                                                      0.697 0.016
                                                                                    0.698
                                                 -3.3000
                                                             0.020
                                                             0.016
       21
             0.3000
                      -0.5548
                                0.921
                                                 -3.0000
                                                                      3.698
                                                                            0.019
                                                                                    0.697
             0.2375
                      -0.6128
                                0.940
                                                                      0.600
                                                                                    0.698
                                                 -2.7000
                                                             0.012
                                                                            0.016
                                                                      0.609
                      -0.6237
      18
             0.2250
                                0.945
                                                 -2.4000
                                                             0.013
                                                                             0.020
                                                                                    0.697
                                0.960
                                                                      0.702
                                                                                    0.697
      17
                      -0.5625
             0.2000
                                                 -2.1000
                                                             0.005
                                                                            0.018
                                0.967
             0.1800
                      -0.6928
                                                 -1.8000
                                                             0.003
                                                                      0.703 0.022
                                                                                    0.696
       15
             0.1400
                      -0.7038
                                0.376
                                                 -1.5000
                                                            -0.002
                                                                      0.704
                                                                            0.025
                                                                                    0.694
             0.1400
                      -3.7287
                                0.987
                                                 -1.3500
                                                            -0.003
                                                                      0.704
                                                                             0.021
                                                                                    0.697
       13
             0.1200
                      -0.7596
                                0.998
                                                 -1.2000
                                                            -0.000
                                                                      0.703
                                                                             0.026
                                                                                    0.694
                                                 -1.0500
       12
             0.1000
                      -0.9355
                                1.029
                                                            -0.001
                                                                      0.704
                                                                            0.029
                                                                                    0.693
                                1.518
                                                 -0.9000
             0.0900
                      -0.9074
                                                                      0.705
                                                                             0.028
                                                                                    0.693
                                                            -0.001
       11
                                1.010
             0.0800
                      -0.7890
                                                 -0.7500
                                                                      0.705
                                                                             0.028
                                                            -0.002
                                                                                    0.694
       10
                                0.998
                                                                      0.707
             0.0700
                                                 -0.6500
                                                            -0.007
                                                                             0.027
                                                                                    0.694
                      -0.7609
                                0.996
                      -0.7562
             0.0600
                                                 -0.5500
                                                            -0.010
                                                                      0.707
                                                                             0.021
                                                                                    0.696
                                1.075
                      -0.9474
             0.0500
                                                 -0.4500
                                                            -0.010
                                                                      3.739 0.027
                                                                                    0.694
                                                 -0.3500
             0.0400
                      -1.1341
                                1.156
                                                            -0.016
                                                                      0.711
                                                                             0.025
                                                                                    0.695
                                                                             0.027
             0.0300
                      -1.1150
                                1.147
                                                 -0.2500
                                                            -0.019
                                                                      0.711
                                                                                    0.693
                                                 -0.1500
                                                            -0.023
             0.0100
                      -0.7740
                                1.003
                                                                      0.713
                                                                            0.030
                                                                                    0.693
                      -0.2577
                                                                      0.713
             0.0050
                                0.303
                                                 -0.0500
                                                            -0.024
                                                                            0.033
                                                                                    0.692
                       1.0388
                                0.180
             0.0000
                                                  0.0500
                                                                            0.036
                                                                                    0.690
                                                            -0.027
                                                                      0.714
             0.0050
                       0.9999
                                0.298
                                                  0.1500
                                                            -0.021
                                                                      0.713
                                                                            0.037
                                                                                    0.689
                       0.6424
                                0.434
             0.0100
                                                  0.2500
       54
                                                            -0.020
                                                                      0.713
                                                                            Q.042
                                                                                    0.689
                                                            -0.025
       55
             0.0230
                       0.3661
                                                  0.3500
                                                                      0.714
                                                                            0.043
                                                                                    0.688
       56
             0.0300
                       0.1862
                                0.532
                                                  0.4500
                                                            -0.021
                                                                      0.712
                                                                            0.037
                                                                                    0.690
       57
             0.0400
                       O. DARR
                                0.570
                                                  0.5500
                                                            -0.015
                                                                      0.711
                                                                            0.038
                                                                                    0.690
             0.0500
                       0.0320
                                                  0.5500
                                0.692
                                                            -0.020
                                                                            0.035
                                                                                    0.690
                                                                      0.712
                                                  0.7500
                                0.719
       50
             0.0750
                      -0.0378
                                                                                    0.702
                                                            -0.014
                                                                      0.710 0.005
             0.2000
                      -0.2201
                                0.787
       62
                                                  0.9000
                                                            -0.109
                                                                      0.708
                                                                            0. 334
                                                                                    0.691
                      -0.2627
             0.2500
                                0.903
                                                                      0.709
       47
                                                  1.0500
                                                            -0.012
                                                                            0.034
                                                                                    0.691
                                0.920
       64
             0.3000
                      -0.3025
                                                  1.2000
                                                            -0.009
                                                                      0.709
                                                                            0.032
                                                                                    0.691
                                                   1.3500
       65
             0.3500
                      -0.3306
                                0.331
                                                            -0.009
                                                                      0.709
                                                                            0.030
                                                                                    0.693
             0.4000
                      -0.3398
                                0.833
                                                                      0.706
                                                                            0.036
                                                                                    0.690
       66
                                                  1.5000
                                                            -0.006
                                                                                    0.690
       4.7
             0.4500
                      -0.3107
                                0.922
                                                  1.8000
                                                            -0.000
                                                                      0.707
                                                                            0.332
             0.5000
                      -0.2949
                                0.817
                                                  2.1000
                                                            -0.003
                                                                      0.706
                                                                            0.032
                                                                                    0.592
             0.5625
                      -0.2740
                                0.316
                                                                      0.706
                                                                            0.028
                                                                                    0.693
                                                            -0.004
                                                  2.4000
                                                                      0.707 0.018
                                                  2.7000
                                                            -0.010
                                                                                    0.696
```

```
SURFACE PRESSURE MEASUREMENTS
                                                                               TABLE 7.6
                                   RUN NUMBER =4974
                                   SCAN NUMBER
                                   CONFIGURATION
                                                    = DHCJJK
                                   TEST MACH NUMBER = 0.754
                                   REYNOLDS NUMBER = 0.1384F 08
                                   INCIDENCE (NORTH) = 1.994
                                   PO
                                                    = 60.15PS TA
                                   O
                                                    = 16.41PSI
                                   V/U (SIDEWALL)
                                                   =0.0052
                                                    = 0.389
                                  CX
                                                    =-.00530
                                  CMC4
                                                    =-0.0408
                                                    = 0.3888
                                  CL
                                  CDP
                                                    = 0.0002
                              MILICALI
    ORIFICE
                X/C
                        CP
                       0.2329 0.659
TE UPPER
             1.0000
                                                     DRIFICE
                                                                 X/C
                                                                          CP
                       0.1765 0.684
                                                                                MILDICALL
      51
             0.9500
             0.9250
                       0.1347
                               0.703
                                                      70
                                                                      -0.3509
                                                              0.6000
                                                                                 0.213
      49
             0.9000
                      0.0907
                               0.727
                                                      71
                                                              0.4500
                                                                      -0.3134
                                                                                 0.394
             0.9600
                      -0.0308
                               0.774
      47
                                                      72
                                                              0.7000
                                                                      -0.1314
                                                                                 0.317
                     -0.0909
             0.8400
                              0.799
      46
                                                      73
                                                              0.7250
                                                                      -0.0209
                                                                                 0.769
             0.8200
                      -0.1649
                               0.828
      45
                                                              0.7500
                                                                                 0.731
                                                       74
                                                                        0.0654
             0.7800
                               0.38R
                      -0.3071
      43
                                                       75
                                                              0.7750
                                                                        0.1362
                                                                                 0.700
             0.7600
                      -0.3625
                               0.912
      42
                                                       76
                                                              0.8000
                                                                        0.1835
                                                                                 0.580
                      -0.4132
             0.7400
                               0.934
      41
                                                       77
                                                              0.9250
                                                                        0.2195
                                                                                 0.555
                               0.949
      40
             0.7200
                     -0.4470
                                                       78
                                                                        0.2396
                                                              0.8500
                                                                                 0.656
                      -0.4689
             0.7000
                               0.957
                                                       79
                                                              0.0000
                                                                        0.2519
                                                                                 0.550
                      -0.4771
             J.6800
                               0.960
                                                                        0.2557
                                                       80
                                                              0.9500
                                                                                0.650
                               0.959
                      -0.4722
      37
             0.5600
                                                TE LOWER
                                                              1.0000
                                                                        0.2329
                                                                                0.659
                               0.958
      36
             0.6400
                      -0.4692
                               0.95?
      35
             0.6200
                     -0.4790
                      -0.4911
      34
             0.6000
                               0.968
                      -0.5285
                               0.986
      22
             0.5800
             0.5500
                      -0.5699
      32
                               1.003
                                                STATIC PRESSURES AT CEILING AND FLOOR
                     -0.6083
             0.5400
                               1.020
      31
                               1.025
      30
             0.5200
                     -0.6187
             0.5000
                     -0.6371
                               1.035
      29
                                                          CEILING
                                                                           FLOOR
      25
             0.4750
                      -0.6481
                               1.039
                                               X/C
                                                           CP
                                                                           CP
      27
             0.4500
                     -0.6508
                               1.040
                                                                   0.751
                                                                                 0.755
                                               -4.5000
                                                           0.020
                                                                          0.013
             0.4250
                     -0.6462
                               1.038
                                                                   0.749
                                                                          0-013
                                                                                 0.753
                                               -4.2000
                                                           0.021
                               1. 129
      25
                     -0.6255
             0.4000
                                                                   0.756
                                                                                 0.751
                                               -3.9000
                                                           0.008
                                                                          0.017
      24
             0.3750
                     -0.6067
                               1.021
                                               -3.6000
                                                           0.023
                                                                   0.749
                                                                          0.018
                                                                                 0.753
      23
             0.3500
                     -0.6004
                               1.017
                                                           0.022
                                               -3.3000
                                                                   0.749
                                                                          0.017
                                                                                 0.751
             0.3250
                     -0.5330
      22
                               1.011
                                               -3.0000
                                                           0.027
                                                                   0.748
                                                                          0. 322
                                                                                 0.749
                     -0.5780
             0.3000
                               1.007
                                                                   0.748
                                                                          0. 325
                                               -2.7000
                                                           0.026
                                                                                 0.748
                      -0.7812
      19
             0.2375
                               1.103
                                                                          0.025
                                               -2.4000
                                                           0.020
                                                                   0.750
                                                                                 0.748
      10
             0.2250
                     -0.8183
                               1.120
                                                                   0.752
                                                                          0.022
                                                                                 0.749
                                               -2.1000
                                                           0.019
                     -0.8538
                              1.134
      17
            0.2000
                                                                   0.753
                                                                          0.023
                                                                                 0.751
                                               -1.8000
                                                           0.014
                     -0.3645
                               1.139
             0.1300
     14
                                                                   0.756
                                                                          0.030
                                               -1.5000
                                                           0.004
                                                                                 0.746
                               1.134
                     -0.3543
      1 5
             0.1600
                                               -1.3500
                                                           0.007
                                                                   0.755
                                                                          0.009
                                                                                 0.755
      14
             0.1400
                     -0.3621
                               1.137
                                                                                 0.744
                                               -1.2000
                                                           0.007
                                                                   0.756
                                                                          0.037
      1 3
                     -0.9050
                               1.158
             0.1200
                                               -1.0500
                                                           0.003
                                                                   0.757
                                                                          0.030
                                                                                 0.745
                     -0.9077
                               1.160
      12
             0.1000
                                               -0.9000
                                                                   0.759
                                                                          0.032
                                                           0.002
                                                                                 0.745
                     -0.3931
                               1.151
             0.0900
      11
                                               -0.7500
                                                          0.002
                                                                   0.759
                                                                          0.035
                                                                                 0.746
                     -0.9120
             0.0800
                               1.159
      10
                                               -0.6500
                                                                   0.762
                                                                          0.027
                                                                                 0.746
                                                          -0.006
                     -7.7395
                               1.175
             0.0700
                                               -0.5500
                                                                   0.759
                                                                          0.027
                                                                                 0.749
                                                          -0.001
                               1.139
                     -0.9577
             0.0600
                                               -0.4500
                                                                   0.762
                                                                          0.024
                                                                                 0.749
                                                         -0.005
                     -0.9861
                               1.198
             0.0500
                                               -0.3500
                                                          -0.009
                                                                   0.763
                                                                          0.031
                                                                                 0.746
                               1.206
             0.0400
                     -0.9989
                                               -0.2500
                                                          -0.015
                                                                   0.765
                                                                          0.028
                                                                                 0.747
                              1.166
             0.0300
                     -0.9169.
                                                          -0.021
                                                                   0.757
                                                                          0.036
                                                                                 0.744
                                               -0.1500
             0.0100
                     .-0.5857
                               1.)10
                                                          -0.022
                                                                   0.768
                                                                          0.035
                                               -0.0500
                     -0.0057
                               0.300
             0.0050
                                                0.0500
                                                          -0.028
                                                                   0.770
                                                                          0.341
                                                                                 0.742
                               0.161
             0.0000
                      1.0857
                                                0.1500
                                                          -0.021
                                                                   0.770
                                                                          0.040
                                                                                 0.741
                       0.3893
                               0.379
             0.0050
                                                                   0.769
                                                                          0. )44
                                                0.2500
                                                                                 0.741
                                                          -0.021
                               0.475
     54
             0.0100
                      0.6324
                                                                   0.771
                                                0.3500
                                                          -0.025
                                                                          0.346 0.740
                      0.3578
                               0.505
     55
             0.0200
                                                                   0.770
                               0.679
                                                0.4500
                                                          -0.022
                                                                          0.343
                                                                                 0.742
                      0.1889
     54
             0.0300
                                                0.5500
                                                          -0.017
                                                                   0.765
                                                                          0.039
                                                                                 0.743
                      0.0977
     57
             0.0400
                                                          -0.016
                                                                   0.74 R
                                                                          0. 342 0.741
                                                0.6500
                               0.744
     50
             0.0500
                      0.0356
                                                                   0.763
                                                0.7500
                                                          -0.014
                                                                          0.102
                                                                                 0.759
                     -0. 1443
                               0.777
     50
             0.0750
                                                0.9000
                                                          -0.014
                                                                   0.765
                                                                          0.040 0.741
                               0.859
             0.2000
                     -0.2364
                                                1.0500
                                                                   0.762
                                                                          0.037
                                                          -0.008
                                                                                 0.743
     43
             0.2500
                     -0.2894
                               0.380
                                                1.2000
                                                                   0.761
                                                          -0.006
                                                                          0.337
                                                                                 0.743
                     -0.3397
                               0.902
                                                                   0.760
     6.4
             0.3000
                                                1.3500
                                                                          0.738
                                                          -0.002
                                                                                 0.743
                               0.919
     65
            0.3500
                     -0.3782
                                                                          0.036
                                                1.5000
                                                          -0.003
                                                                   0.760
                                                                                 0.744
     66
             0.4000
                     -0.3879
                               0.923
                                                                          0.032
                                                1.8000
                                                          0.005
                                                                   0.757
                                                                                 0.744
     67
             0.4500
                     -0.3560
                               0.709
                                                           0.001
                                                                   0.758
                                                                          0.032
                                                                                 0.746
                                                2.1000
     50
             0.5000
                     -0.3267
                               0.307
                                                                          0.028
                                                2.4000
                                                           0.006
                                                                   0.756
                                                                                 0.747
                     -0.3327
                               0.379
             0.5625
                                                2.7000
                                                          -0.008
                                                                   0.752
                                                                          0.321
                                                                                 0-750
```

The state of the second of the

```
SURFACE PRESSURE MEASUREMENTS
                                                                                    TABLE 7.7
                                     PUN NUMBER
                                                   =4970
                                     SCAN NUMBER
                                                      = 4
                                     CONFIGURATION
                                                      = DHCJJK
                                     TEST MACH NUMBER = 0.794
                                     REYNOLDS NUMBER = 0.1429E 08
                                     INCIDENCE (NORTH) = 1.474
                                     PO
                                                     = 60.19PSIA
                                                      = 17.52PSI
                                     V/U (SIDEWALL) =0.0049
                                    CN
                                                      = 0.335
                                    CX
                                                      =0.00066
                                    CMC4
                                                      =-0.0496
                                    CI
                                                      = 0.3353
                                    CDP
                                                      = 0.0003
    OPIFICE
                                 MILTCALI
                          CP
                 X/C
                        0.2407
                                  0.590
TE UPPER
              1.0000
                                                        USIFICE
                                                                      X/C
                                                                               CP
                                                                                      MILOCALI
                                  0.715
      51
              0.9500
                        0.1874
                                                          70
                                                                   0.6900 -0.4239
                                                                                       0.903
      50
              0.0250
                        0.1495
                                  0.733
                                                           71
                                                                  0.5500
                                                                          -0.3539
                                                                                       0.961
              0.0000
                       0.1002
                                  0.754
      40
                                                           72
                                                                   0.7000
                                                                           -0.1363
                                                                                      0.961
                       -0.0103
      47
              0.9600
                                  0.804
                                                           73
                                                                   0.7250
              0. 8400
                                                                           -0.0243
                                                                                       0. 810
                      -0.3687
                                  0.330
      46
                                                           74
                                                                  0.7500
                                                                            0.0605
                                                                                      0.772
              0.8200
                      -0.1328
      45
                                  0.350
                                                                  0.7750
                                  0.919
                                                           75
                                                                            0.1317
                                                                                      0.740
      43
              0.7800
                       -0.2673
                                                           75
                                                                   0.8000
                                                                            0.1832
                                                                                      0.717
      42
              0.7600
                       -0.3240
                                  0.945
                                                           77
                                                                   0.8250
                                                                            0.2167
                                                                                      0.702
              0.7400
                       -0.3743
                                  0.770
      41
                                                           78
                                                                   0.9500
                                                                            0.2413
                                                                                      0.590
                       -0.4017
                                  0.983
      40
              0.7200
                                                           79
                                                                   0.9000
                                                                            0.2595
                                                                                      0.681
                                  0.985
              0.7000
                       -0.4074
                                                           80
                                                                   0.9500
                                                                            0.2666
                                                                                      0.578
      2 0
                       -0.3999
                                  0.992
              0.6800
                                                    TE LOWER
                                                                   1.3000
                                                                            0.2407
                       -0.4040
                                                                                      0.500
                                  0.985
      27
              0.6600
      36
                                  1.008
              0. 4400
                      -0.4524
      35
              0.6200
                       -0.5324
                                  1.047
                                  1.149
      24
              0.6000
                       -0.7354
      33
                       -0.7871
                                  1.175
              0.5800
      27
                       -0.7541
              0.5600
                                  1.162
                                                    STATIC PRESSURES AT CEILING AND FLOOR
      31
              0. 5400
                       -0.7972
                                  1.174
      20
              0. 5200
                       -0.7344
                                  1.171
              0.5000
                       -0.7751
                                  1.166
      20
                                                            CEILING
                       -0.7534
                                  1.155
                                                                               FLOOR
      28
              0.4750
      27
                                                                              CP
                                  1.160
                                                  X/C
                                                             ( 0
              0.4500
                      -0.7611
                                                            0.017
                                                                             0.016
                                                                                      0.792
                                                                     0.792
      26
              0.4250
                       -0.7662
                                  1.164
                                                 -4.5000
                                                                     0.788
                                                                             0.015
                                                                                     0.792
                       -0.7661
                                  1.163
                                                -4.2000
                                                            0.023
      25
              0,4000
                                                                                     0.791
                                                                             0.015
      24
                       -0.7514
                                                 -3.9000
                                                            0.007
                                                                     0.797
              0.3750
                                  1.160
                                                                                     0.792
      23
              0.3500
                       -0.7593
                                  1.159
                                                 -3.6000
                                                             0.024
                                                                     0.789
                                                                             0.014
              0.3250
                       -0.7527
                                  1.157
                                                             0.025
                                                                             0.015
      22
                                                 -3.3000
                                                                     J. 789
                                                                                     0.794
      21
                                                 -3.0000
                                                                     0.787
                                                                             0.018
                                                                                     0.792
              0.3000
                       -0.7704
                                  1.157
                                                             0.025
                                  1.164
                       -0.7687
                                                 -2.7000
                                                             0.027
                                                                     0.787
                                                                             0.020
                                                                                     0.791
      19
              0.2375
                                                             0.024
                                                                     0.789
                                                                             0.021
                                                                                     0.790
                                                 -2.4000
      18
              0.2250
                       -0.7776
                                                 -2.1000
                                                                     0.792
                                                                             0.023
                                                             0.015
                                                                                     0.789
                       -0.7585
      17
              0.2000
                                  1.160
                                                                     0.795
                                                                             0.022
                                                                                     0.790
      16
              0.1900
                       -0.7524
                                  1.156
                                                 -1.8000
                                                             0.010
                                                                     0.795
                       -0.7374
      1 0
              0.1400
                                  1.143
                                                 -1.5000
                                                             0.009
                                                                             0.027
                                                                                     0.788
                                                                     0.794
                       -0.7048
                                  1.130
                                                 -1.3500
                                                             0.012
                                                                             0.003
                                                                                     0.797
              0.1430
      14
                                                 -1.2000
                                                             0.008
                                                                     0.795
                                                                             0.024
                                                                                     0.789
              0.1200
                                  1.112
      13
                       -0.6672
                                                                             0.024
                                                                     0.795
                                                                                     0.788
                                                 -1.0500
                                                             0.011
      12
              0.1000
                      -0.6363
                                  1.097
                                                                     0.797
                                                                             0.028
                                                                                     0.787
                                                 -0.9000
                                                             0.006
              0.0900
                      -0.6072
                                  1.082
                                                                             0.025
                                                 -0.7500
                                                             0.003
                                                                     0.798
                                                                                     0.788
              0.0800
                      -0.6345
                                  1.096
      10
                                                -0.6500
                                                            0.001
                                                                     0.798
                                                                             0.023
                                                                                     0.789
                      -0.6588
                                  1.109
              0.0700
                                                 -0.5500
                                                                     0.802
                                                                             0.021
                                                                                     0.789
                      -0.6760
                                                           -0.005
              0.0600
                                  1.118
                                                                     0.807
                                                                                     0.791
                                                                             0.019
                      -0.7349
                                                 -0.4500
                                                           -0.007
              0.0500
                                  1.148
                                                                                     0.790
                                                                     0.805
                      -0.7457
                                  1.154
                                                 -0.3500
                                                           -0.015
                                                                             0.021
              0.0400
                      -0.7019
              0.0300
                                  T. 131
                                                 -0.2500
                                                           -0.017
                                                                     0.808
                                                                             0.024
                                                                                     0.788
                                                                     0.810
                                  0.945
                                                 -0.1500
                                                           -0.023
                                                                             0. 324
                                                                                     0.788
              0.0100
                      -0.3713
                                                 -0.0500
                                                                             0.027
                                                                                     0.787
                                  0.746
                                                           -0.026
                                                                     0.812
              0.0050
                        0.1165
                                                 0.0500
                                                            -0.028
                                                                     0.812
                                                                             0.028
                                                                                     0.786
              0.0000
                        1.1411
                                  0.105
                                                  0.1500
                                                            -0.027
                                                                             0.033
                                                                                     0.784
                       0.8177
                                                                     0.811
              0.0050
                                  0.397
                                                                             0.034
                                                                                     0.784
                                                                     2.811
                                  0.545
                                                  0.2500
                                                            -0.027
      5.4
              0.0100
                       0.5474
                                                                     0.811
                                                  0.3500
                                                           -0.027
                                                                             0.037
                                                                                     0.783
              0.0200
                       0.2671
                                  0.579
                                                                             0.028
                                                                                     0.786
              0.0300
                       0.0967
                                  0.756
                                                  0.4500
                                                            -0.023
                                                                     0.810
      56
                                  0.800
                                                  0.5500
                                                            -0.021
                                                                     0.810
                                                                             0.UZR
                                                                                     0.786
              0.0400
                      -0.0034
      57
                                                                     0.805
                                                                             0.027
                                                                                     0.787
              0.0500
                                                  0.6500
                                                            -0.016
                      -0.0620
                                  0.927
      58
                                                                     0.907 -0.302
                                                                                     0.801
                                                  0.7500
                                                            -0.015
      5.0
              0.0750
                      -0.1263
                                  0.357
                                                                                     0.787
                      -0.3184
                                                  0.9000
                                                                     0.805
                                                                             0.027
              0.2000
                                                           -0.014
      62
                                  0.943
                                                                                     0.785
                                                  1.0500
                                                                      3.804
                                                                             3.032
              0.2500
                                                           -0.009
      63
                      -0.3715
                                  0.968
                                                                     3.804
                                                                             0.032
                                                                                     0.785
                                                  1.2000
              0.3000
                                  0.998
                                                            -0.010
      1.4
                      -0.4324
                                                                             0:030
                                                                                     0.786
                                                  1.3500
                                                            -0.009
                                                                     0.804
      60
              0.3500
                      -0.5079
                                  1.034
                                                                             0.031
                                                                                     0.786
                                                  1.5000
              0.4000
                      -0.5238
                                                            -0.006
                                                                     0.801
                                  1.041
      66
                      -0.4360
                                 0.998
                                                  1.8000
                                                            -0.004
                                                                     0.902
                                                                             0.032
                                                                                     0.784
              0.4500
      67
                                                                     0.700
                                                                             0. 129
                                                                                     0.786
                                                  2.1000
                                                            -0.002
                                 0.977
      10
              0.5000
                      -0.3914
                                                                     0.799
                                                                             0.028
                                                                                     0.797
                                 0. 778
                                                  2.4000
                                                            0.001
                      -0.3922
              0.5625
                                                                                     0.792
                                                                             0.015
                                                                      0.802
                                                            -0.007
```

2.7000

TABLE 7.8.

```
SURFACE PRESSURE MEASUREMENTS
RUN NUMBER = 4944

SCAN NUMBER = 2
CONFIGUPATION = DHCJJK
TEST MACH NUMBER = 0.2553E 08
INCIDENCE (NORTH) = 1.999
PO = 114.80PSIA
Q = 28.52PSI
V/U (SIDEWALL) = 0.0051
CN = 0.381
CX =-0.0477
CL = 0.3814
CDP = 0.0077
```

| ORIF | | CP | M(LOCAL) | | | | | |
|----------|---------|--------------------|----------|-----------|-----------|---------|---------|-------|
| TE UPPER | 1.0000 | 0.2569 | 0.504 | GELEIG | CE X/C | CP | MILOC | CALI |
| 51 | 0.9500 | 0.1698 | 0.640 | 70 | 0.6000 | -0.321 | 9 0.9 | 30 |
| 50 | 0.9250 | 0.1096 | 0.664 | 71 | 0.6500 | -0.290 | | |
| 49 | 0.9000 | 0.0440 | 0.590 | 72 | 0.7000 | -0.131 | | |
| 47 | 0.8600 | -0.0924 | 0.740 | 73 | 0.7250 | -0.027 | | |
| 46 | 0.8400 | -0.1453 | 0.764 | 74 | 0.7500 | 0.065 | | |
| 45 | 0.8200 | -0.2144 | 0.791 | 75 | 0.7750 | 0.145 | | |
| 43 | 0.7800 | -0.3485 | 0.842 | 76 | 0.8000 | 0.190 | | |
| 42 | 0.7600 | -0.3938 | 0.859 | 77 | 0.8250 | 0.224 | | 8 |
| 41 | 0.7400 | -0.4376 | 0.876 | 78 | 0.9500 | 0.245 | | 0 |
| 40 | 0.7230 | -0.4530 | 0.883 | 79 | 0.9000 | 0.252 | | |
| 30 | 0.7000 | -0.4723 | 0.890 | 90 | 0.9500 | 0.260 | 7 0.50 |)4 |
| 20 | 0.6800 | -0.4741 | 0.890 | TE LOWER | 1.0000 | 0.256 | 9 0.50 |)4 |
| 37 | 0.6600 | -0.4663 | 0.887 | | | | | |
| 3.6 | 0.6400 | -0.4647 | 0.986 | | | | | |
| | 0.5200 | -0.4749 | 0.395 | | | | | |
| 34 | 0.6000 | -0.4863 -0.5098 | 0.905 | | | | | |
| 12 | 0.5600 | -0.5304 | 0.911 | | | | | |
| 31 | 0.5400 | -0.5545 | 0.921 | STATIC | PRESSURES | AT CEIL | ING AND | FLOOR |
| 30 | 0.5200 | -0.5598 | 0.923 | | | | | |
| 29 | 0.5000 | -0.5676 | 0.927 | | | | | |
| 20 | 0.4750 | -0.5824 | 0.934 | | CEILING | | FLOO | 0 |
| 27 | 0.4500 | -0.5761 | 0.931 | X/C | CP | м | CP | M |
| 26 | 0.4250 | -0.5808 | 0.934 | -4.5000 | 0.008 | 0.704 | 0.302 | 0.707 |
| 25 | 0.4000 | -0.5734 | 0.930 | -4.2000 | 0.014 | 0.702 | 0.007 | 0.703 |
| 24 | 0.3750 | -0.5676 | 0.926 | -3.9000 | 0.004 | 0.705 | 0.007 | 0.705 |
| 23 | 0.3500 | -0.5778 | 0.931 | -3.6000 | 0.013 | 0.703 | 0.003 | 0.706 |
| 22 | 0.3250 | -0.5677 | 0.927 | -3.3000 | 0.014 | 0.702 | 0.006 | 0.705 |
| 21 | 0.3000 | -0.5856 | 0.734 | -3.0000 | 0.017 | 0.701 | 0.010 | 0.703 |
| 19 | 0.2375 | -0.6292 | 0.952 | -2.7000 | 0.016 | 0.701 | 0.011 | 0.703 |
| 1.9 | 0.2250 | -0.6457 | 0.959 | -2.4000 | 0.013 | 0.702 | 0.011 | 0.703 |
| 17 | 0.2000 | -0.6630 | 0.766 | -2.1000 | 0.005 | 0.705 | 0.014 | 0.703 |
| 16 | 0.1300 | -0.5894 | 0.977 | -1.9000 | 0.005 | 0.705 | 0.012 | 0.702 |
| 15 | 0.1600 | -3.7147 | 0.986 | -1.5000 | 0.000 | 0.707 | 0.019 | 0.700 |
| 14 | 0.1400 | -0.7383 | 0.995 | -1.3500 | -0.000 | 0.707 | -0.002 | 0.708 |
| 12 | 0.1200 | -0.7794 | 1.012 | -1.2000 | -0.004 | 0.708 | 0.020 | 0.700 |
| 12 | 0.1000 | -0.8386 | 1.136 | -1.0500 | -0.001 | 0.709 | 0.020 | 0.700 |
| 11 | 0.0000 | -0.8178 | 1.328 | - 7. 5000 | -0.001 | 0.709 | 0.019 | 0.700 |
| 1 () | 0.0800 | -0.7978 | 1.018 | -0.7500 | -0.005 | 0.710 | 0.020 | 0.700 |
| 9 | 0.0700 | -0.7760 | 1.009 | -0.6500 | -0.014 | 0.712 | 0.018 | 0.700 |
| Q | 0.06,00 | -0.7833 | 1.012 | -0.5500 | -0.008 | 0.710 | 0.014 | 0.702 |
| 7 | 0.0500 | -1.0354 | 1.118 | -0.4500 | -0.015 | 0.714 | 0.017 | 0.700 |
| | 0.0400 | -1.1473 | 1.168 | -0.3500 | -0.019 | 0.715 | 0.019 | 0.700 |
| | 0.0300 | -1.0944 | 1.145 | -0.2500 | -0.019 | 0.719 | 0.024 | 0.699 |
| 3 | 0.0100 | -0.7402 | 0.994 | -0.1500 | -0.024 | 0.716 | 0.025 | 0.698 |
| ? | 0.0050 | -0.2595 | 0.307 | 0.0500 | -0.025 | 0.718 | 0.029 | 0.696 |
| 7.1 | 0.0000 | 1.0377 | 0.183 | 0.1500 | -0.028 | 0.719 | 0.037 | 0.693 |
| 53 54 | 0.0050 | 0.6339 | 0.301 | 0.2500 | -0.026 | 0.718 | 0.032 | 0.696 |
| 55 | 0.0100 | 0.3619 | 0.563 | 0.3500 | -0.027 | 0.718 | 0.038 | U.692 |
| 56 | 0.0300 | 0.1959 | 0.531 | 0.4500 | -0.024 | 0.716 | 0.330 | 0.695 |
| 57 | 0.0410 | 0.0960 | 0.673 | 0.5500 | -0.020 | 0.715 | 0.032 | 0.695 |
| 56 | 0.0500 | 0.0285 | 0.696 | 0.6500 | -0.021 | 0.716 | 0. 331 | 0.694 |
| 50 | 0.0750 | -0.0459 | 0.726 | 0.7500 | -0.017 | 0.714 | -0.306 | 0.709 |
| 42 | 0.2000 | -0.2185 | 0.791 | 0.9000 | -0.014 | 0.712 | 0.029 | 0.696 |
| 63 | 0.2500 | -0.2563 | 0.306 | 1.0500 | -0.011 | 0.713 | 0.032 | 0.695 |
| 44 | 0.3000 | -0.2970 | 0.321 | 1.2000 | -0.009 | 0.711 | 0.032 | 0.695 |
| 45 | 0.3500 | -0.3298 | 0.834 | 1.3500 | -0.010 | 0.711 | 0.330 | 0.696 |
| 56 | 0.4000 | -0.3335 | 0.835 | 1.5000 | -0.009 | 0.711 | 0. 328 | 0.697 |
| 67 | 0.4500 | -0.3089 | 0. 926 | 1.8000 | -0.006 | 0.710 | 0.029 | 0.696 |
| 4.9 | 0.5000 | -0.2903 | 0.419 | 2.1000 | -0.003 | 0.711 | 0.030 | 0.697 |
| 49 | 0.5525 | -0.2962 | 0.320 | 2.4000 | -0.000 | 0.708 | 0. 724 | 0.699 |
| | | | | 2.7300 | -0.010 | 0.710 | 0.013 | 0.702 |

2.7000

-0.003

0.760

-0.013

0.763

SURFACE PRESSURE MEASUREMENTS
RUN NUMBER = 4936
SCAN NUMBER = 3
CONFIGURATION = DHCJJK
TEST MACH NUMBER = 0.755
REYNOLDS NUMBER = 0.2541F 08
INCIDENCE(NOPTH) = 0.962
PJ = 109.88PSIA
Q = 30.06PSI
V/U (SIDEWALL) = 0.0035
CN = 0.246
CX = 0.00125
CMC4 = -0.0501
CL = 0.2456
CDP = 0.0054

TABLE 7.10

| | DRIFICE | X/C | CP | MILOCALI | | | | | |
|----|------------|--------|--------------------|----------|--------------------|-------------|---------|----------|----------|
| TF | UPPER | 1.0000 | 0.2699 | 0.645 | ORIFICE | X/C | CP | MIL | OCALI |
| | 51 | 0.9500 | 0.1880 | 0.682 | | | ٠, | | |
| | 50 | 0.9250 | 0.1268 | 0.707 | 70 | 0.6000 | -0.40 | 10 0. | 933 |
| | 49 | 0.9000 | 0.0593 | 0.735 | 71 | 0.6500 | -0.35 | | 912 |
| | 47 | 0.8600 | -0.0591 | 0.786 | 72 | 0.7000 | -0.15 | | 926 |
| | 46 | 0.8400 | -0.1348 | 0.817 | 73 | 0.7250 | -0.03 | | 777 |
| | 45 | 0.8200 | -0.2059 | 0.846 | 74 | 0.7500 | 0.05 | | 739 |
| | 43 | 0.7800 | -0.3491 | 0.908 | 75 | 0.7750 | 0.12 | 41 0.7 | 708 |
| | 42 | 0.7600 | -0.4029 | 0.932 | 76 | 0.8000 | 0.17 | 13 0.6 | |
| | 41 | 0.7400 | -0.4558 | 0.955 | 77 | 0.8250 | 0.210 | 01 0.6 | 71 |
| | 40 | 0.7200 | -0.4865 | 0.969 | 78 | 0.8500 | 0.23 | | 60 |
| | 39 | 0.7000 | -0.4988 | 0.974 | 79 | 0.000 | 0.250 | 06 0.6 | 53 |
| | 38 | 0.6800 | -0.4912 | 0.972 | 90 | 0.9500 | 0.25 | | 50 |
| | 37 | 0.6600 | -0.4815 | 0.967 | TE LOWER | 1.0000 | 0.26 | 99 0.6 | 45 |
| | 36 | 0.6400 | -0.4761 | 0.963 | | | | | |
| | 15 | 0.6200 | -0.4816 | 0.965 | | | | | |
| | 34 | 0.6000 | -0.4873 | 0.969 | | | | | |
| | 33 | 0.5800 | -0.5327 | 0.989 | STATIC | PRESSURE | S AT CE | II ING A | NO FLOOR |
| | 32 | 0.5600 | -0.5716 | 1.004 | 3.2116 | 11.233.31.2 | 3 41 62 | ici de A | TEOSK |
| | 31 | 0.5400 | -0.5986 | 1.016 | | | | | |
| | 30 | 0.5200 | -0.6095 | 1.022 | | CEILING | | FLOOR | |
| | 29 | 0.5000 | -0.6180 | 1.027 | x/C | CP | M | CP | M |
| | 28 | 0.4750 | -0.6135 | 1.025 | -4.5000 | 0.005 | 0.758 | 0.006 | 0.758 |
| | 27 | 0.4500 | -0.6019 | 1.021 | -4.2000 | 0.016 | 0.754 | 0.012 | 0.756 |
| | 26 25 . | 0.4250 | -0.5991 -0.5780 | 1.020 | -3.9000 | -0.001 | 0.761 | 0.010 | 0.756 |
| | | 0.4000 | -0.5627 | 1.004 | -3.6000 | 0.015 | 0.755 | 0.010 | 0.756 |
| | 24 23 | 0.3750 | -0.5556 | 1.002 | -3.2000 | 0.015 | 0.755 | 0.004 | 0.758 |
| | 22 | 0.3250 | -0.5374 | 0.994 | -3.0000 | 0.013 | 0.754 | 0.010 | 0.756 |
| | 21 | 0.3000 | -0.5441 | 0.995 | -2.7000 | 0.018 | 0.757 | 0.007 | 0.756 |
| | 19 | 0.2375 | -0.5726 | 1.007 | -2.4300 -2.1000 | 0.004 | 0.759 | 0.011 | 0.755 |
| | 18 | 0.2250 | -0.5916 | 1.014 | -1.8000 | -0.002 | 0.760 | 0.013 | 0.756 |
| | 17 | 0.2000 | -0.5029 | 1.018 | -1.5000 | 0.004 | J. 759 | 0.011 | 0.755 |
| | 16 | 0.1800 | -0.6132 | 1.023 | -1.3500 | 0.004 | 0.759 | 0.001 | 0.760 |
| | 15 | 0.1600 | -0.6272 | 1.030 | -1.2000 | 0.003 | 0.759 | 0.012 | 0.755 |
| | 14 | 0.1400 | -0.6350 | 1.034 | -1.0500 | 0.007 | 0.760 | 0.012 | 0.756 |
| | 13 | 0.1200 | -0.6754 | 1.053 | -0.9000 | -0.003 | 0.763 | 0.010 | 0.757 |
| | 12 | 0.1000 | -0.6823 | 1.056 | -0.7500 | -0.006 | 0.763 | 0.011 | 0.755 |
| | 11 | 0.0900 | -0.6253 | 1.031 | -0.6500 | -0.010 | 0.764 | 0.012 | 0.756 |
| | 10 | 0.0800 | -0.5917 | 1.017 | -0.5500 | -0.012 | 0.764 | 0.012 | 0.755 |
| | q | 0.0700 | -0.5633 | 1.003 | -0.4500 | -0.012 | 0.766 | 0.013 | 0.756 |
| | 8 | 0.0600 | -0.5858 | 1.011 | -0.3500 | -0.019 | 0.768 | 0.005 | 0.757 |
| | 7 | 0.0500 | -0.6177 | 1.025 | -0.2500 | -0.016 | 0.768 | 0.001 | 0.759 |
| | 6 | 0.0400 | -0.6377 | 1.036 | -0.1500 | -0.019 | 0.769 | 0.002 | 0.759 |
| | 5 | 0.0300 | -0.7186 | 1.073 | -0.0500 | -0.022 | 0.769 | 0.009 | 0.758 |
| | 3 | 0.0100 | -0.2864 | 0.880 | 0.0500 | -0.021 | 0.768 | 0.007 | 0.757 |
| | 2 | 0.0050 | 0.1217 | 0.708 | 0.1500 | -0.017 | 0.768 | 0.014 | 0.755 |
| | 1 | 0.0000 | 1.1248 | 0.102 | 0.2500 | -0.022 | 0.769 | 0.012 | 0.756 |
| | 53 | 0.0050 | 0.7218 | 0.429 | 0.3500 | -0.01R | 0.768 | 0.017 | 0.753 |
| | 54 | 0.0100 | 0.4744 | 0.553 | 0.4500 | -0.019 | 3.769 | 0.008 | 0.758 |
| | 55 | 0.0200 | 0.1656 | 0.691 | 0.5500 | -0.021 | 0.768 | 0.008 | 0.75R |
| | 56 | 0.0300 | -0.0233 | 0.771 | 0.6500 | -0.018 | 0.767 | 0.006 | 0.756 |
| | 57 | 0.0400 | -0.1165 | 0.811 | 0.7500 | -0.014 | 0.767 - | | 0.765 |
| | 58 | 0.0500 | -0.1601 | 0.931 | 0.9000 | -0.009 | 0.765 | 0.002 | 0.758 |
| | 59 | 0.0750 | -0.2110 | 0.852 | 1.0500 | -0.014 | 0.765 | 0.008 | 0.757 |
| | 62 | 0.2000 | -0.3606 | 0.914 | 1.2000 | -0.012 | 0.766 | 0.012 | 0.756 |
| | 63 | 0.2500 | -0.4080 | 0.934 | 1.3500 | -0.011 | 0.765 | 0.011 | 0.758 |
| | 64 | 0.3000 | -0.4580 | 0.956 | 1.5000 | -0.008 | 0.763 | 0.011 | 0.757 |
| | 65 | 0.3500 | -0.4947 | 0. 772 | 1.8000 | -0.009 | 0.764 | 0.013 | 0.755 |
| | 66 | 0.4000 | -0.4773 -0.4291 | 0.965 | 2.1000 | -0.007 | 0.763 | 0.011 | 0.757 |
| | 67 | 0.4500 | -0.3955 | 0.728 | 2.4000 | -0.004 | 0.762 | 0.014 | 0.757 |
| | 69 | | -0.3802 | 0.923 | 2.7000 | -0.007 | 0.764 | 0.002 | 0.760 |
| | 69 | 0.5625 | -0.3602 | 0.425 | | | | | |

```
SUPFACE PRESSURE MEASUREMENTS
                                                                         TABLE 7.11
                               KUN NUMBER
                                             = 5001
                               SCAN NUMBER
                               CONFIGURATION
                                              = DHCJJK
                               TEST MACH NUMBER = 0.756
                               REYNOLDS NUMBER = 0.2515E 08
                               INCIDENCE (NORTH) = 1.485
                               PO = 109.99PSIA
                                               = 30.14PSI
                               V/U (SIDEWALL) =0.0047
                               CN
CX
                                               = 0.326
                                               =-.00128
                               CMC4
                                               =-0.0489
                               CL
                                               = 0.3259
                               CDP
                                               = 0.0072
    TP IF ICE
                      CP
                              M(LOCAL)
TE UPEFR
            1.0000
                     0.2599
                              0.646
                                                     OFIFICE X/C
                                                                                 M(LOCAL)
      51
            0.9500
                     0.1890
                              0.677
                                                     75
      50
            0.9250
                     0.1325
                                                               0.6000
                                                                        -0.3723
                              0.702
                                                                                  0.915
                                                              0.6500
                                                                                  0.900
            0.9000
                     0.0667
                                                                        -0.3354
      49
                              0.729
                                                        71
                                                                        -0.1500
      47
            0.8600
                   -0.0536
                              0.784
                                                       72
                                                                                  0.821
            0.8400 -0.1191
                                                               0.7250
                                                                        -0.0283
                                                                                  0.771
                              0.812
             0.9200 -0.1938
                              0.843
                                                               0.7500
                                                                         0.0533
                                                                                  0.740
                                                               0.7750
                                                                         0.1349
      43
            0.7800
                   -0.3375
                              0.905
                                                        75
                                                                                  0.706
            0.7600 -0.3928
                                                        70
                                                               0.9000
                                                                         0.1818
                                                                                  0.585
      42
                              0.929
                                                               0.8250
                                                                         0.2165
             0.7400 -0.4526
                                                                                  0.670
      41
                                                        77
                              0.955
                                                               0.2500
                                                                         0.2390
            0.7200 -0.4834
                                                                                  0.650
      40
                              0.969
                                                        74
                                                               0.0000
                                                                         0.2544
      39
            0.7000 -0.5010
                              0.979
                                                        79
                                                                                  0.653
                                                                         0.2570
            0.6800
                   -0.4962
                              0.976
                                                        90
                                                               0.9500
                                                                                  0.651
                                             TE LOWER
                   -0.4909
                                                               1.0000
                                                                         0.2599
                                                                                  0.646
            0.6600
                              0.973
            0.6400
                    -0.4830
                              0.969
      35
      35
            0.6200 -0.4892
                              0.972
            0.5000 -0.5085
      34
                              0.980
            0.5800 -0.5513
      33
                              0.998
            0.5600 -0.5922
      32
                              1.019
            0.5400
                   -0.6283
      31
                              1.035
                                                  STATIC PRESSURES AT CEILING AND FLOOR
            0.5200 -0.6321
                              1.036
      29
            0.5000 -0.6486
                              1.044
                                                              CEILING
                                                                              FLOOR
      28
            0.4750 -0.6564
                              1.047
                                                     X/(
                                                               (P
             0.4500 -0.6465
                              1.042
      27
                                                   -4.5000
                                                               0.001
                                                                     0.762 -0.001
                                                                                    0.758
                              1.026
1.021
1.016
      24
            0.4250 -0.6485
                                                   -4.2000
                                                                      0.756 0.011
                                                               0-014
                                                                                    0.753
            0.4000 -0.6183
      25
                                                   -3.9000
                                                              -0.002
                                                                      0.763
                                                                             0.006
                                                                                    0.759
      24
             0.3750 -0.6163
                                                   -3.4000
                                                               0.010
                                                                      0.758
                                                                             0.007
                                                                                    0.758
             0.3500
                   -0.6039
                                                   -3.3000
                                                               0.011
                                                                      0.758
                                                                             0.002 0.761
            0.3250
                   -0.5896
      22
                                                   -3.0000
                                                               0.014
                                                                      0.756
                                                                             0.007
                                                                                    0.759
            0.3000 -0.5833
      21
                                                   -2.7000
                                                               0.012
                                                                      0.756
                                                                             0.005
                                                                                    0.760
     19
            0.2375
                    -0.5850
                              1.013
                                                   -2.4000
                                                               0.009
                                                                      0.759
                                                                             0.010
                                                                                    0.757
                              1.048
      18
            0.2250 -0.6606
                                                              0.001
                                                                      0.760
                                                   -2.1000
                                                                             0.010
            0.2000
                   -0.7911
      17
                                                              0.001
                                                   -1.8000
                                                                      0.762
                                                                             0.013
                                                                                    0.753
            0.1900
                    -0.8164
                              1.120
1.122
1.122
1.111
1.093
                              1.120
                                                   -1.5000
                                                              -0.002
                                                                      0.764
                                                                             0.010
                                                                                    0.758
                    -0.8187
            6.1400
     15
                              1.122
                                                   -1.3500
                                                             -0.002
                                                                      0.764 -0.006
            0.1400
                    -0.8179
     14
                                                   -1.2000
                                                             -0.004
                                                                      0.765
                                                                             0.010
            0.1200
                    -0.7957
     13
                                                   -1.0500
                                                              -0.002
                                                                      0.762
                                                                             0.015
                                                                                    0.757
                    -0.7555
            0.1000
     12
                              1.062
1.049
1.039
                                                             -0.007
                                                   -0.9000
                                                                      0.765
                                                                             0.010
                                                                                    0.758
                    -0.6844
     11
            0.0900
                                                   -0.7500
                                                              -0.012
                                                                      0.766
                                                                             0.017
                    -0.6569
            0.0800
                                                   -0.6500
                                                              -0.016
                                                                      0.769
                                                                             0.012 0.758
            0.0700
                    -0.6377
                                                   -0.5500
                                                             -0.012
                                                                      0.768
                                                                             0.010
                                                                                    0.755
            0.0600
                    -0.6875
                                                   -0.4500
                                                              -0.014
                                                                      0.768
                                                                             0.016
            0.0500
                    -0.8095
                              1.119
                                                   -0.3500
                                                              -0.020
                                                                      0.771
                                                                             0.011
                                                                                    0.756
                    -0.8630
            0.0400
                              1.144
                                                   -0.2500
                                                              -0.027
                                                                      0.774
                                                                             0.004
                                                                                   0.760
            0.0300
                    -0.8156
                              1.120
                                                                             0.011
                                                    -0.1500
                                                              -0.029
                                                                      0.774
                                                                                    0.758
                     0.4357
                              0.949
            0.0100
                                                   -0.0500
                                                              -0.032
                                                                      0.776
                                                                             0.012
                      0.0376
                                                                                    0.756
            0.0050
                              0.746
                                                    0.0500
                                                              -0.033
                                                                      0.775
                                                                             0.016
                                                                                    0.756
                     1.1049
            0.0000
                              0.137
                                                    0.1500
                                                              -0.027
                                                                      0.772
                                                                             0.023
                                                                                    0.754
            0.0050
                      0.8171
                              0.376
                                                    0.2500
                                                              -0.031
                                                                      0.775
                                                                             0.021
                                                                                    0.754
            0.0100
                      0.5654
                              0.510
                                                    0.3500
                                                              -0.034
                                                                      0.773
                                                                             0.024
                                                                                    0.753
                      0.2776
            0.0200
                              0.542
                                                    0.4500
                                                              -0.030
                                                                      0.771
                                                                             0.014
                                                                                    0.755
     56
            0.0300
                     0.0916
                              0.722
                                                              -0.026
                                                                      0.773
                                                     0.5500
                                                                             0.013
                                                                                    0.755
     57
            0.0400
                     -0.0116
                              0.766
                                                     0.6500
                                                              -0.029
                                                                      0.770
                                                                             0.017
                                                                                    0.756
            0.0500
                    -0.0659
     53
                              0.789
                                                     0.7500
                                                                      0.771 -0.014
                                                              -0.019
                                                                                    0.768
            0.0750
                    -0.1377
     50
                              0.820
                                                     0.0000
                                                              -0.011
                                                                      0.763
                                                                             0.014
                                                                                    0.757
            0.2000
                    -0.3045
                              0.893
                                                    1.0500
                                                              -0.016
                                                                      0.767
                                                                             0.017
                                                                                    0.756
            0.2500
                     -0.3457
                              0.911
     63
                                                     1.2000
                                                              -0.011
                                                                      0.768
                                                                             0.018
                                                                                    0.755
                     -0.3995
            0.3000
                              0.934
     64
                                                     1.3500
                                                                                    0.755
                                                              -0.012
                                                                      0.767
                                                                             0.015
                     -0.4412
            0.3500
                              0.951
     65
                                                     1.5000
                                                              -0.007
                                                                      0.765
                                                                             0.015
                                                                                    0.756
            0.4000
                               0.948
                     -0.4340
     55
                                                              -0.009
                                                    1.8000
                                                                      0.765
                                                                             0.018
                                                                                    0.754
     67
            0.4500
                     -0-3948
                              0.931
                                                    2.1000
                                                              -0.005 0.764
                                                                             0.013
            0.5000
                                                                                    0.756
                     -0.3650
     68
                              0.917
                                                              -0.004 0.764
                                                                             0.014
                                                    2.4000
                                                                                    0.756
            0.5625
                     -0.3457
                              0.903
                                                     2.7000
                                                              -0.004 0.759
                                                                             0.003
                                                                                    0.762
```

1000

TABLE 7,12

```
SCAN NUMBER
                                                      = 2
                                    CONFIGURATION = DHCJJK
                                    TEST MACH NUMPER = 0.757
                                    REYNCLOS NUMBER = 0.2529E 08
                                    INCIDENCE (NURTH)= 1.742
                                                      =109.93PSIA
                                    PO
                                                      = 30.17PSI
                                    0
                                    V/U (SIDEWALL) =0.0047
                                    CN
                                                      = 0.368
                                    CX
                                                      =-.00243
                                    CMC4
                                                      =-0.0485
                                                      = 0.3678
                                    CL
                                    CDP
                                                     = 0.00A7
                  X/C
                          CF
                                 M(LOCAL)
    DRIFICE
               1.0000 0.2533
TE UPPER
                                  0.652
                                                         ORIFICE
                                                                         X/C
                                                                                 CF
                                                                                        MILOCALI
                       0.1764
               0.9500
                                  0.685
      51
                                                            70
                                                                     0.6000 -0.3710
               0.9250
                        0.1294
                                  0.706
      50
                                                                     0.6500 -0.3332
                                                             71
               0.9000
                       0.0718
                                  0.730
                                                                                        0.903
      49
                                                             72
                                                                      0.7000 -0.1373
               0.8600 -0.0559
                                                                                        0.818
                                  0.783
      47
                                                             73
                                                                     0.7250 -0.0256
                                                                                        0.770
               0.8400 -0.1246
                                  0.814
      46
                                                                     0.7500
                                                                              0.0509
                                                             74
               0.3200 -0.1947
                                                                                        0.738
                                  0.845
      45
                                                                     0.7750
                                                                               0.1402
                                                             75
               0.7800 -0.3360
                                                                                        0.704
                                  0.907
      43
                                                             76
                                                                      0.9000
                                                                               0.1904
               0.7600 -0.3920
                                                                                        0.683
                                  0.932
                                                             77
                                                                      0.8250
                                                                               0.2235
                                                                                        0.668
               0.7400 -0.4496
                                  0.957
      41
                                                             78
                                                                      0.8500
                                                                               0.2442
                                                                                        0.658
               0.7200 -0.4819
                                  0.970
      40
                                                             79
                                                                     0.9000
                                                                               0.2574
                                  0.977
               0.7000 -0.4989
                                                                                        0.651
      39
                                                             80
                                                                     0.9500
                                                                               0.2644
               0.6800 -0.4990
                                  0.978
                                                                                        0.649
      38
                                                    TE LOWER
                                                                     1.0000
               0.6600 -0.4949
                                  0.975
                                                                               0.2533
                                                                                        0.652
       37
               0.6400 -0.4900
                                  0.973
       36
               0.6200 -0.4929
0.6000 -0.5056
       35
                                  0.976
                                  0.983
       34
               0.5800 -0.5524
                                  1.004
       33
               0.5600 -0.5940
                                  1.018
       32
               0.5400 -0.6250
                                  1.033
       31
                                                      STATIC PRESSURES AT CEILING AND FLOOR
               0.5200 -0.6334
       30
                                  1.037
               0.5000 -0.6800
                                  1.059
       29
               C.4750 -0.6689
                                  1.052
       28
                                                                  CFILING
                                                                                    FLOOR
               0.4500 -0.6815
       27
                                  1.058
                                                        X/C
                                                                    CP
                                                                                    CP
               0.4250 -0.6525
                                                      -4.5000
                                  1.045
                                                                   0.003
       26
                                                                            0.761 0.003 0.759
               0.4000 -0.6295
                                  1.035
       25
                                                      -4.2000
                                                                   0.014
                                                                           0.756 0.003 0.760
                                  1.029
                0.3750 -0.6162
       24
                                                                            0.763 0.007 0.761
                                                       -3.9000
                                                                   0.003
               0.3500 -0.5981
                                  1.021
       23
                                                       -3.6000
                                                                    0.010
                                                                            0.758 0.002 0.759
               0.3250 -0.5648
                                  1.006
                                                                            0.758 0.005 0.762
0.755 0.009 0.761
       22
                                                       -3.3000
                                                                   0.011
               0.3000 -0.5571
0.2375 -0.8224
                                  1.003
       21
                                                       -3.0000
                                                                    0.019
                                                                            0.756 0.009 0.759
0.759 0.010 0.759
       17
                                  1.121
                                                       -2.7000
                                                                   0.015
               0.2250 -0.8316
0.2000 -0.8368
                                  1.127
       18
                                                       -2.4000
                                                                   0.012
                                  1.132
       17
                                                       -2.1000
                                                                   0.004
                                                                            0.760 0.010 0.758
               0.1800 -0.8402
                                  1.135
                                                                   0.003
                                                                            0.761 0.012 0.756
0.766 0.010 0.758
0.764 -0.009 0.769
       16
                                                       -1.8000
               0.1600 -0.8206
       15
                                   1.127
                                                       -1.5000
                                                                  -0.004
               0.1400 -0.8080
       14
                                  1.121
                                                       -1.3500
                                                                  -0.003
               0.1200 -0.7700
       13
                                  1.102
                                                       -1.2000
                                                                  -0.004
                                                                            0.765 0.019 0.757
                                                                            0.763 0.017 0.756
0.764 0.015 0.756
               0.1000 -0.7619
       12
                                   1.098
                                                                  -0.001
                                                       -1.0500
               0.0900 -0.7836
                                   1.107
                                                       -0.9000
                                                                  -0.005
                                                                            0.767 0.014 0.755
0.767 0.017 0.756
0.768 0.014 0.754
0.770 0.009 0.757
               0.0800 -0.7801
                                   1.106
       10
                                                       -0.7500
                                                                  -0.010
               0.0700 -0.8656
                                  1.147
                                                       -0.4500
                                                                  -0.012
               0.0600 -0.9053
                                   1.166
                                                       -0.5500
                                                                  -0.012
        3
               0.0500 -0.9233
                                                       -0.4500
                                  1.177
                                                                  -0.019
               0.0400 -0.9187
                                   1.177
                                                       -0.3500
                                                                  -0.022
                                                                            0.772 0.013 0.757
               0.0300 -0.8424
                                                                            0.775 0.015 0.755
0.777 0.019 0.754
0.779 0.020 0.754
0.778 0.028 0.751
                                   1.139
                                                       -0.2500
                                                                  -0.028
                0.0100 -0.4982
                                   0.976
                                                       -0.1500
                                                                  -0.031
               0.0050 -0.0232
                                  0.773
                                                       -0.0500
                                                                  -0.037
                0.0000
                        1.1056
                                   0.136
                                                       0.0500
                                                                  -0.035
                0.0050
                         0.8587
                                  0.350
                                                        0.1500
                                                                            0.774 0.029 0.751
0.776 0.024 0.751
       53
                                                                  -0.035
                        0.6045
                                   0.491
                                                        0.2500
                0.0100
                                                                  -0.036
                         0.3184
       55
               0.0200
                                  0.625
                                                        0.3500
                                                                  -0.033
                                                                            0.774 0.033 0.750
               0.0300
                        0.1396
                                  0.703
       56
                                                        0.4500
                                                                  -0.030
                                                                            0.774 0.024 0.752
               0.0400
                        0.0327
                                                        0.5500
                                                                            0.775 0.023 0.753
       57
                                  0.748
                                                                  -0.027
                                                                            0.769 0.023 0.752
0.771-0.013 0.763
0.769 0.024 0.752
               0.0500 -0.0247
                                                                  -0.022
       58
                                  0.773
                                                        0.6500
                0.0750 -0.0907
       59
                                  0.801
                                                        0.7500
                                                                  -0.019
                0.2000 -0.2715
                                   0.979
                                                        0.9000
                                                                  -0.021
       52
                0.2500 -0.3204
                                  0.901
                                                        1.0500
                                                                  -0-018
       43
                                                                            0.770 0.026 0.753
                0.3000 -0.3723
                                  0.924
                                                                  -0.013
       54
                                                        1.2000
                                                                            0.768 0.026 0.752
                                  0.937
                0.3500 -0.4035
                                                                            0.769 0.024 0.752
                                                        1.3500
                                                                  -0.011
                0.4000 -0.4114
                                  0.939
       56
                                                        1.5000
                                                                  -0.006
                                                                            0.767 0.022 0.753
                0.4500 -0.3729
       57
                                  0.921
                                                                  -0.007
                                                        1.8000
                                                                            0.768 0.024 0.752
                0.5000 -0.3421
                                  0.907
                                                                            0.768 0.023 0.753
                                                                  -0.009
                                                        2.1000
                0.5625 -0.3504
                                                        2.4000
                                                                            0.764 0.019 0.755
0.767 0.008 0.760
                                  0.910
                                                                  -0.003
                                                        2.1000
                                                                  -0.014
```

SURFACE PRESSURE MEASUREMENTS

= 5001

RUN NUMBER

```
TABLE 7.13
                                                = 5001
                                  RUN NUMBER
                                  SCAN NUMBER
                                                   = 3
                                  CONFIGURATION
                                                  = DHCJJK
                                  TEST MACH NUMBER = 0.757
                                  REYNOLDS NUMBER = 0.2537E 08
                                  INCIDENCE (NORTH) = 2.011
                                  PO
                                                  =109.93PSIA
                                                   = 30.17PSI
                                  V/U (SIDEWALL) =0.0047
                                  CX
                                                   =-.00442
                                  CMC4
                                                  =-0.0476
                                  CDP
                                                   = 0.4026
                                                   = 0.0097
               X/C
                       CP
                              MILOCALI
    DRIFICE
                                                    GRIFICE
                                                                 X/C
                                                                        CP
            1.0000
                     0.2492
                                                                               MILTCALI
TE HODER
                               0.655
             0.0500
                      0.1758
                               0.686
                                                       70
                                                              0.6000 -0.3615
      51
                                                                                0.915
      50
             0.9250
                                                              0.6500 -0.3248
                      0.1272
                               0.707
                                                       71
                                                                                0.900
      49
            0.9000
                     0.0676
                                                             0.7000 -0.1353
                                                                                0.819
                               0.733
                                                       72
                     -0.0499
             0.3600
                               0.783
                                                             0.7250 -0.0200
      47
                                                       73
                                                                                0.770
                    -0.1195
             0.3400
                               0.812
                                                             0.7500
      46
                                                       74
                                                                      0.0039
                                                                                0.735
             0.3200
                                                             0.7750
                    -0.1916
      45
                               0.843
                                                       75
                                                                       0.1459
                                                                                0.700
      43
             0.7800 -0.3315
                               0.904
                                                       76
                                                              0.8000
                                                                       0.1972
                                                                                0.678
             0.7600
                     -0.393R
                               0.931
                                                       77
                                                              0.8250
      42
                                                                       0.2278
                                                                                0.665
                               0.954
             0.7400 -0.4467
                                                             0.8500
      41
                                                                       0.2509
                                                                                0.655
      4)
             0.7200
                    -0.4834
                               0.971
                                                       79
                                                             0.9000
                                                                       0.2667
                                                                                0.548
             0.7000
                    -C.453A
                               0.377
                                                              0.0500
      39
                                                       30
                                                                      0.2684
                                                                                0.647
                    -0.4992
             0.5800
                               0.979
                                               TE LOWER
                                                              1.0000
      33
                                                                       0.2492
                                                                                0.655
             0.6400
                    -0.4035
      37
                               0.776
             0.5400 -0.4825
                               0.372
      34
      35
             0.6200
                    -0.4869
                               0.975
             0.5000
                    -0.5059
                               0.992
                    -0.5582
      33
             C.58UO
                               1.004
                    -0.5015
             0.5600
                               1.017
      32
             0.5400
                    -0.6354
                               1.037
      31
             0.5200
                    -0.6495
                                                 STATIC PRESSURES AT CEILING AND FLOOR
      30
                              1.044
             0.5000
                    -0.6838
                               1.059
      29
      20
             0.4750
                    -0.6843
                              1.058
                                                          CFILING
                                                                           FLOOR
      27
             0.4500 -0.5838
                               1.059
                                                 X/C
                                                            CP
                                                                            CP
             0.4250 -0.6580
                               1.048
      25
                                                -4.5000
                                                            0.008 0.758
                                                                         100.00
                                                                                  0.762
             0.4000 -0.6325
      25
                              1.036
                                                -4.2000
                                                            0.021 0.754
                                                                           0.006
                                                                                  0.759
             0.3750
                    -0.6039
                               1.022
      24
                                                -3.9000
                                                           -0.000 0.763
                                                                           0.005
                                                                                  0.760
             0.3500 -0.5774
      23
                               1.011
                                                -3.6000
                                                           0.015 0.756
                                                                           0.007
                                                                                  0.759
             0.3250
                    -0.5253
                               0.990
      22
                                                           0.016 0.756
                                                -3.3000
                                                                           0.009
                                                                                  0.761
             0.3000 -0.5305
      21
                               0.994
                                                            0.018 0.754
                                                -3.0000
                                                                           0.011
                                                                                   0.760
                     -0.8696
             0.2375
      19
                               1.147
                                                -2.7000
                                                            0.015
                                                                   0.756
                                                                           0.011
                                                                                  0.759
      13
             0.2250 -0.8754
                               1.150
                                                -2.4000
                                                            0.014
                                                                   0.757
                                                                           0.010
                                                                                  0.758
      17
             0.2000 -0.8920
                               1.159
                                                -2.1000
                                                            0.001
                                                                   0.761
                                                                           0.010
                                                                                  0.758
            C. 1900
                     -0.8922
                               1.159
      14
                                                -1.8000
                                                            0.001 0.762
                                                                           0.008
                                                                                  0.758
                    -0.8723
             0.1500
                               1.149
      15
                                                -1.5000
                                                          -0.001
                                                                   0.763
                                                                           0.018
                                                                                  0.756
             0.1400
                               1.157
                    -0.6864
      14
                                                -1.3500
                                                           0.001
                                                                  0.762
                                                                          -0.009
                                                                                  0.766
                     -0.8990
      13
             0.1200
                               1.163
                                                -1.2000
                                                            0.000
                                                                  0.762
                                                                           0.016
                                                                                  0.756
                     -0.8910
             0.1000
                               1.161
                                                -1.0500
                                                           0.002
                                                                   0.763
                                                                           0.022
                                                                                   0.755
             0.0900
                     -0.8791
                               1.156
                                                -0.9000
                                                          -0.002
                                                                  0.763
                                                                           0.018
                                                                                  0.756
                               1.168
             0.0800
                     -0.9038
      10
                                                -0.7500
                                                          -0.011
                                                                           0.019
                                                                  U.767
                                                                                  0.753
             0.0700
                     -0.9336
                               1.132
                                                                   0.766
                                                -0.6500
                                                          -0.009
                                                                           0.019
                                                                                  0.756
                               1.194
                     -0.9545
             0.0600
                                                -0.5500
                                                          -0.014
                                                                   0.768
                                                                           0.020
                                                                                  0.753
             0.0500
                     -0.9736
                               1.205
                                                -0.4500
                                                          -0.020
                                                                                  0.756
                                                                   0.770
                                                                           0.013
             0.0400
                     -0.9737
                               1.204
                                                -0.3500
                                                          -0.025
                                                                   0.772
                                                                           0.019
                                                                                  0.754
             0.0300
                     -0.8917
                               1.151
                                                -0.2500
                                                          -0.030
                                                                   0.777
                                                                           0.024
                                                                                   0.752
                    -0.5721
             0.0100
       3
                               1.009
                                                -0.1500
                                                          -0.036
                                                                   0.778
                                                                           0.023
                                                                                   0.752
             0.0050
                     -0.0641
                               0.789
                                                                                  0.749
                                                -0.0500
                                                          -0.034
                                                                   0.779
                                                                           0.029
             0.0000
                      1.0892
                               0.158
                                                 0.0500
                                                          -0.040
                                                                   0.779
                                                                           0.032
                                                                                  0.749
             0.0050
                      0.8846
                               0.333
                                                 0.1500
                                                          -0.032
                                                                   0.775
                                                                           0.036
                                                                                   0.747
                      0.6540
             0.0100
                               0.466
      54
                                                 0.2500
                                                          -0.036
                                                                   0.777
                                                                           0.030
                                                                                   0.748
                      0.3609
      55
             0.0200
                               0.506
                                                 0.3500
                                                          -0.033
                                                                   0.776
                                                                           0.038
                                                                                   0.747
             0.0300
                      0.1768
      53
                               0.686
                                                 0.4500
                                                          -0.038
                                                                   0.778
                                                                           0.026
                                                                                   0.750
                      0.0699
      5.7
             0.0400
                               0.732
                                                 0.5500
                                                          -0.024
                                                                   0.775
                                                                           0.028
                                                                                   0.750
      53
             0.0500
                      0.0122
                               0.757
                                                 0.6500
                                                          -0.028
                                                                   0.774
                                                                           0.030
                                                                                   0.749
             0.0750
      59
                    -0.0563
                               0.787
                                                 0.7500
                                                          -0.024
                                                                   0.774
                                                                          -0.005
                                                                                   0.764
             0.2000 -0.2410
      52
                               0.364
                                                 0.9000
                                                          -0.023
                                                                   0.771
                                                                           0.027
                                                                                   0.750
             0.2500
                    -0.2914
                               0.886
      63
                                                 1.0500
                                                          -0.019
                                                                   0.770
                                                                           0.032
                                                                                   0.749
                    -0.3428
      54
             0.3000
                               0.909
                                                 1.2000
                                                          -0.012
                                                                   0.769
                                                                           0.034
                                                                                   0.749
             0.3500
                    -0.3845
                               0.927
      45
                                                 1.3500
                                                          -0.014
                                                                   0.770
                                                                                   0.751
                                                                           0.027
                    -0.3657
             0.4000
      05
                               0.928
                                                 1.5000
                                                          -0.013
                                                                   0.768
                                                                           0.030
                                                                                   0.750
             0.4500 -0.3477
      4.7
                               0.911
                                                          -0.014
                                                 1.8000
                                                                   0.769
                                                                           0.035
                                                                                   0.748
                    -0.3259
      48
             0.5000
                               0.901
                                                 2.1000
                                                          -0.010 0.767
                                                                           0.030
                                                                                   0.749
             0.5625 -0.3295
                               0.902
                                                                           0.027
                                                                                   0.752
                                                 2.4000
                                                          -0.004
                                                                   0.765
                                                 2.7000
                                                          -0.013 0.767
                                                                           0.014
```

1.5000

1.8000

2.1000

2.4000

2.7000

-0.005

-0.007

-0.006

-0.003

-0.016

0.762 0.032

0.762 0.037

0.763 0.032

0.761 0.030

0.765 0.021

0.745

0.743

0.745

0.747

0.751

CRIFICE

51

49

47

46

45

43

42

40

38

37

26

25

23

31

30

20

28

27

25

24

22

21

10

18

16

15

14

13

12

11

10

54

56

57

58

50

62

63

65

66

67

4.4

10

TE UPPER

X/C

1.0000

0.9500

0.9250

0.9000

0.7800

0.7600

0.7200

0.6800

0.6600

0.6400

0.6200

0.5900

0.5600

0.5400

0.5200

0.5000

0.4750

0.4500

0.4250

0.4000

0.3750

0.3500

0.3250

0.3000

0.2375

0.2250

0.2000

0.1900

0.1600

0.1460

0.1200

0.1000

0.0900

0.0200

0.0700

0.0500

0.0400

0.0300

0.0100

0.0050

0.0000

0.0050

0.0100

0.0200

0.0300

0.0400

0.0500

0.0750

0.2000

0.2500

0.4000 -0.3457

0.4500 -0.3188

0.5000 -0.3034

0.5625 -0.3096

And the way the day of the property of

0.905

0.993

0.887

0.880

CP

ORIFICE

51

50

47

46

45

43

41

40

39

38

37

33

32

31 30

29

26

25

23

22

17

16

12

11

10

53

54

55

56

58

62

63

65

0.0050

0.0100

0.0400

TE UPPER

X/C

```
SURFACE PRESSURE MEASUREMENTS
               RUN NUMBER
                             =4938
               SCAN NUMBER
                                                                    TABLE 7.15
               CONFIGURATION = DHCJJK
                TEST MACH NUMBER = 0.751
               REYNOLDS NUMBER = 0.2514E 08
               INCIDENCE (NORTH) = 3.034
                                =109.96PSIA
               PO
                                = 29.87PSI
               Q
                V/U (SIDEWALL) =0.0036
               CN
                                = 0.534
                                =-.01398
               CX
               CMC4
                                =-0.0394
               CL
                               = 0.5342
               COP
                                = 0.0143
          CP
                MILOCALI
                                          DETETCE
                                                      X/C
                                                              CP
                                                                   MILDCAL
1.0000 0.2790
                0.636
0.9500 0.1936
                 0.672
                                                   0.6000 -0.3083 0.984
                 0.697
0.9250
       0.1382
                                                    0.6500 -9.2823 0.874
                                             71
0.9000 0.0712
                 0.726
                                                    0.7000 -0.1109
                                                                   0.903
                                             72
0.8600 -0.0454
                 0.778
                                                                    0.759
                                             73
                                                    0.7250 -0.0033
0.8400 -0.1118
                 0.806
                                             74
                                                    0.7500
                                                            0.0854
                                                                    0.720
0.8200 -0.1855
                 0.335
                                             75
                                                    0.7750
                                                            0.1597
                                                                    0.689
                 0.892
0.7800 -0.3211
                                             76
                                                    0.8000
                                                            0.2074
                                                                    0.569
0.7600 -0.3739
                 0.914
                                                            0.2371
                                             77
                                                    0.8250
                                                                    0.656
0.7400 -0.4256
                 0.935
                                             78
                                                    0.8500
                                                            0.2583
                                                                    0.647
0.7200 -0.4648
                 0.951
                                                    0.9000
                                                            0.2706 0.542
                                             79
                 0.956
0.7000 -0.4722
                                                    0.9500
                                                            0.2724 0.641
                                             9.)
                 0.958
0.6800 -0.4763
                                      TE LOWER
                                                    1.0000
                                                            0.2790 0.536
0.6600 -0.4735
                 0.956
0.6400 -0.4716
                 0.955
                 0.960
0.6200 -0.4806
0.6000 -0.4928
                 0.965
0.5800 -0.5349
                 0.482
                 0.995
0.5600 -0.5642
0.5400 -0.5800
                 1.004
0.5200 -0.5821
                 1.006
                                  STATIC PRESSURES AT CEILING AND FLOOR
0.5000 -0.5873
                 1.007
                 1.006
0.4750 -0.5877
                                              CEIL ING
                                                               FLOOR
0.4500 -0.5302
                 0.981
                                    X/C
                                               CP
                                                               CP
0.4250 -0.5260
                 0.980
                                               0.014
                                                       0.751
                                                             0.008
                                   -4.5000
                                                                     0.753
0.4000 -0.4724
                 0.957
                                   -4.2000
                                                       0.750
                                               0.019
                                                              0.020
                                                                     0.746
                 0.966
0.3750 -0.4949
                                   -3.9000
                                                       0.757
                                              -0.001
                                                              0.017
                                                                     0.750
                 1.047
0.3500 -0.6796
                                   -3.6000
                                               0.019
                                                       0.748
                                                              0.019
                                                                     0.751
0.3250 -1.0317
                 1.216
                                   -3.3000
                                               0.020
                                                       0.748
                                                              0.012
                                                                     0.751
                 1.231
0.3000 -1.0589
                                   -3.0000
                                               0.023
                                                       0.747
                                                              0.018
                                                                     0.749
0.2375 -1.0787
                 1.248
                                   -2.7000
                                               0.017
                                                       0.748
                                                              0.019
                                                                     0.747
                 1.254
0.2250 -1.0922
                                   -2.4000
                                               0.017
                                                       0.750
                                                              0.022
                                                                     0-746
0.2000 -1.1127
                 1.261
                                               0.009
                                                       0.752
                                   -2.1000
                                                              0.026
                                                                     0.745
0.1800 -1.1221
0.1600 -1.1296
                1.264
                                   -1.8000
                                               0.006
                                                       0.754
                                                              0.031
                                                                     0.742
                1.269
                                   -1.5000
                                               0.003
                                                       0.756
                                                              0.030
                                                                     0.743
                 1.271
0.1400 -1.1360
                                   -1.3500
                                             -0.002
                                                       0.758
                                                              0.014
                                                                     0.750
0.1200 -1.1410
                1.272
                                   -1.2000
                                                       0.758
                                             -0.003
                                                              0.032
                                                                     0.742
0.1000 -1.1481
                 1.275
                                   -1.0500
                                             -0.002
                                                       0.757
                                                              0.042
                                                                     0.738
0.0900 -1.1235
                 1.264
                                                       0.758
                                                              0.039
                                   -0.9000
                                             -0.004
                                                                     0.739
0.0800 -1.1390
                1.273
                                   -0.7500
                                             -0.008
                                                       0.760
                                                              0.042
                                                                     0.741
0.0700 -1.1462
                 1.276
                                   -0.6500
                                             -0.015
                                                       0.764
                                                              0.042
                                                                     0.738
0.0600 -1.1597
                1.283
                                   -0.5500
                                             -0.018
                                                       0.763
                                                              0.039
                                                                     0.741
                1.288
0.0500 -1.1665
                                   -0.4500
                                             -0.020
                                                       0.764
                                                              0.042
                                                                     0.736
                1.286
0.0400 -1.1629
                                   -0.3500
                                             -0.026
                                                       0.768
                                                              0.039
                                                                     0.740
0.0300 -1.0446
                 1.221
                                   -0.2500
                                             -0.029
                                                              0.039
                                                       0.768
                                                                     0.742
                1.127
0.0100 -0.8470
                                   -0.1500
                                             -0.035
                                                       0.770
                                                              0.042
                                                                     0.739
                 0.899
0.0050 -0.3354
                                                              0.047
                                   -0.0500
                                             -0.039
                                                       0.772
                                                                     0.736
                 0.225
0.0000 1.0236
                                                       0.772
                                    0.0500
                                             -0.037
                                                              0.051
                                                                     0.736
        0.9791
                0.262
                                    0.1500
                                                              0.053
                                             -0.030
                                                       0.772
                                                                     0.734
        0.7648
                 0.403
                                                       0.773
                                    0.2500
                                             -0.034
                                                              0.050
                                                                     0.735
        0.4951
                 0.540
0.0200
                                    0.3500
                                             -0.034
                                                       0.772
                                                              0.053
                                                                     0.735
0.0300
        0.3123
                0.623
                                    0.4500
                                             -0.031
                                                       0.768
                                                              0.347
                                                                     0.736
        0.2225
                 0.661
                                    0.5500
                                                                     0.736
                                             -0.029
                                                       0.769
                                                              0.048
        0.1529
                0.691
0.0500
                                    0.6500
                                             -0.027
                                                       0.768
                                                              0.043
                                                                     0.737
0.0750 0.0746
                0.724
                                    0.7500
                                                      0.764 -0.004
                                             -0.019
                                                                     0.758
0.2000 -0.1430
0.2500 -0.2003
                0.816
                                                      0.761
                                    0.9000
                                                             0.045
                                             -0.015
                                                                     0.738
                0.841
                                    1.0500
                                             -0.017
                                                      0.764
                                                              0.347
                                                                     0.737
                 0.964
0.3000 -0.2543
                                    1.2000
                                             -0.010
                                                       0.760
                                                              0.043
                                                                     0.739
0.3500 -0.2992
                0.883
                                    1.3500
                                             -0.013
                                                      0.762
                                                              0.340
                                                                     0.738
0.4000 -0.3140
                0.990
                                    1.5000
                                                      0.759
                                                              0.043
                                             -0.006
                                                                     0.738
0.4500 -0.2862
                0.879
                                    1.9000
                                             -0.012
                                                       0.760
                                                              0.041
                                                                     0.741
0.5000 -0.2769
                0.875
                                                              0. 339
                                                                     0.740
                                    2.1000
                                             -0.006
                                                      0.758
0.5625 -0.2743 0.869
                                    2.4000
                                                      0.756
                                                              0.031
                                             -0.003
                                                                     0.743
                                    2.7000
                                             -0.006
                                                      0.757
                                                              0.019
                                                                     0.748
```

ORIFICE

51

50

49

47

46

45

40

27

36

35

34 33

31

30

TE UPPER

X/C

0.9500

0.5000 -0.4199 20 29 0.4750 -0.4458 27 0.4500 -3.6070 0.4250 -1.0416 26. 0.4000 -1.2044 25 24 0.3750 -1.2050 23 0.3500 -1.2032 0.3250 -1.2076 22 0.3000 -1.2154 21 0.2375 -1.2224 14 18 0.2250 -1.2371 17 0.2000 -1.2330 0.1800 -1.2464 0.1600 -1.2462 0.1400 -1.2547 0.1200 -1.2436 13 0.741 -1.0500 1.336 -0.006 0.1000 -1.2462 12 0.761 0.049 0.736 0.0900 -1.2245 1.323 -0.9000 -0.009 -0.7500 0.763 0. 145 0.738 0.0800 -1.2474 1.332 -0.012 10 0-048 -0.6500 -0.017 0.763 0.736 0.0700 -1.2231 1.321 0.768 0.048 -0.5500 0.737 0.0600 -1.2312 1.326 -0.025 0.350 0.737 0.0500 -1.2361 -0.4500 -0.924 0.768 1.329 0.050 0.736 -0.3500 -0.032 0.772 0.0400 -1.2367 1.328 0.733 -0.2500 -0.036 0.772 0.055 0.0300 -1.1560 1.283 0.057 -0.1500 -0.045 3.776 0.734 0.0100 -0.9520 1.179 -0.0500 -0.344 0.776 0.061 0.732 0.0050 -0.4209 0.937 0.777 0.0000 0.9654 0.274 0.0500 -0.047 0.060 0.733 1.0302 0.220 0.1500 -0.044 0.775 0.066 0.730 53 0.0050 0.355 0.2500 -0.047 0.777 0.064 0.731 0.0100 0.8469 54 0.5977 0.491 0.3500 -0.041 0.774 0.070 0.728 55 0.0200 0.4500 -0.037 0.773 0.063 0.732 0.4261 0.573 56 0.0300 0.5500 0.772 0.060 0.732 57 0.3237 0.619 -0.036 0.0400 0.4500 -0.030 0.770 0.053 0.735 0.0500 0.2541 0.550 44 0.0750 0.1685 0.759 0.769 -0.003 0.586 0.7500 -0.028 其内 0.9000 -0.021 0.767 0.051 0.736 0.2000 -0.0675 0.786 4.3 0.765 0.058 0.2500 -0.1345 0.814 1.0500 -0.020 0.733 4.2 1.2000 -0.019 0.765 0.061 0.732 0.3000 -0.1855 0. 336 0.767 0. 153 0.3500 -0.2296 1.3500 -0.024 0.736 6.8 0.355 0.763 1.5000 -0.014 0.350 0.736 0.4000 -0.2511 0.963 0.765 0. 154 0.734 1.8000 -0.022 0.4500 -3.2285 0.453 -0.014 0.763 0.046 0.738 2.1000 0.5000 -0.2323 0.354 0.037 2.4000 -0.007 0.760 0.742 0.4425 -0.2509 0.963 2.7000 -0.015 0.764 0.026

The state of the s

```
RUN NUMBER
                                                                                TABLE 7.18
                                   SCAN NUMBER
                                                    = 3
                                   CONFIGURATION
                                                    = DHCJJK
                                   TEST MACH NUMBER = 0.841
                                   REYNOLDS NUMBER = 0.2519E 08
                                   INCIDENCE(NORTH) = 1.001
                                                    =102.99PS1A
                                   PO
                                                    = 32.09PSI
                                   V/U (SIDEWALL) =0.0033
                                   CN
                                                    = 0.113
                                   CX
                                                    =0-02548
                                   CMC4
                                                    =-0.0043
                                   CL
                                                    = 0.1130
                                   COP
                                                    = 0.0275
    DRIFICE
                X/C
                       CP
                              M(LOCAL)
TE UPPER
            1.0000 0.1206
                               0.783
                                                                    X/C
                                                                        CP
                                                                                  M(LOCAL)
                                                       ORIFICE
      51
             0.9500
                               0.906
                    0.0849
                                                                 0.6000 -3.8194
                                                                                   1.283
                                                          70
             0.9250
      50
                     0.0526
                               0.821
                                                                 0.6500 -0.3631
                                                                                   1.025
                                                          71
      40
             0.9000
                     0.0438
                               0.924
                                                                 0.7000 -0.2127
                                                                                   0.949
      47
             0.8600 0.0013
                               0.846
                                                                 0.7250 -0.1999
                                                                                   0.943
                                                          73
                               0.858
      46
             0.8400 -0.0226
                                                                                   0.941
                                                                 0.7500 -0.1863
                                                          74
      45
             0.8200 -0.0479
                               0.359
                                                                 0.7750 -0.1861
                                                          75
                                                                                   0.941
      43
             0.7800 -0.1161
                               0.903
                                                                 0.8000 -0.1502
                                                                                   0-924
                                                          76
      42
             0.7600 -0.1574
                               0.723
                                                                 0.8250 -0.1498
                                                                                   0.723
                               0.952
      41
             0.7400 -0.2177
                                                          78
                                                                 0.8500 -0.0926
                                                                                   0.895
      40
             0.7200 -0.3825
                               1.035
                                                                 0.9000 0.0213
                                                          70
                                                                                   0.940
      39
             0.7000 -0.5685
                               1.191
                                                                 0.9500 0.1164
1.0000 0.1296
                                                                                   0.793
                                                          20
      38
             0.6800 -0.8137
                               1.278
                                                   TE LOWER
                                                                                   5.783
                               1.265
      37
            0.6600 -0.7912
      26
             0.6400 -0.7895
                               1.263
      25
             0.6200 -0.7902
                               1.261
      34
             0.6000 -0.7777
                               1.254
             0.5800 -0.7729
      33
                               1.254
             0.5600 -0.7504
      32
                               1.237
                                                 STATIC PRESSURES AT CEILING AND FLUUR
      31
             0.5400 -0.7336
                               1.228
      20
             0.5200 -0.7062
                               1.212
      29
             0.5000 -0.7001
                               1.208
                                                            CEILING
                                                                            FLOOR
      28
            0.4750 -0.6744
                               1.194
                                                 X/C
                                                             CP
                                                                            CP
      27
             0.4500 -0.6554
                               1.185
                                                 -4.5000
                                                             0.014 0.842 0.307
                                                                                   0.842
      26
             0.4250 -0.6559
                               1.192
                                                 -4.2000
                                                             0.028 0.836 0.017
                                                                                   0.838
      25
             0.4000 -0.6539
                               1.185
                                                 -3.9000
                                                             0.006 0.847
                                                                           0.020
                                                                                   0.837
      24
             0.3750 -0.6505
                               1.192
                                                 -3.6000
                                                             0.028
                                                                    0.834 0.015
                                                                                   0.840
      23
             0.3500 -0.6387
                               1.177
                                                 -3.3000
                                                             0.028 0.835 0.013
                                                                                   0.839
      22
            0.3250 -0.6322
                               1.174
                                                 -3.0000
                                                             0.034
                                                                    0.829 0.019
                                                                                   0.836
      21
             0.3000 -0.6313
                               1.174
                                                                   0.832 0.022
                                                 -2.7000
                                                             0.034
                                                                                   0.835
      19
             0.2375 -0.5181
                               1.164
                                                             0.031
                                                                   0.835 0.026
                                                 -2.4000
            0.2250 -0.5145
                                                                                   0.833
      19
                              1.161
                                                            0.026
                                                 -2.1000
                                                                   0.834 0.324
                                                                                   0.834
      17
            0.2000 -0.6025
                              1.154
                                                                    0.836 0.019
                                                 -1.8000
                                                             0.021
                                                                                   0.837
            0.1800 -0.5999
                              1.152
     16
                                                 -1.5000
                                                             0.023
                                                                    0.838 0.027
                                                                                   0.833
            0.1400 -3.5815
                              1.142
     15
                                                 -1.3500
                                                             0.029
                                                                   0.836 0.007
                                                                                   0.843
            0.1400 -0.5623
                              1.132
     14
                                                 -1.2000
                                                                    0.839 0.331
                                                            0.022
                                                                                   0.831
            0.1200 -0.5301
                              1.113
      13
                                                            0.025
                                                                   0.826 0.024
                                                 -1.0500
                                                                                   0.835
                              1.091
            0.1000 -0.4386
      12
                                                 -0.9000
                                                            0.023
                                                                    0.836 0.024
                                                                                   0.835
                              1.058
            0.0900 -0.4253
      11
                                                 -0.7500
                                                            0.020
                                                                   0.838 0.018
                                                                                   0.838
                              1.047
            0.0800 -0.4032
      10
                                                                   0.842 0.017
                                                 -0.6500
                                                            0.016
                                                                                   0.938
            0.0700 -0.3913
                              1.036
                                                 -0.5500
                                                                    0.842 0.011
                                                            0.007
                                                                                   0.841
                               1.053
            0.0600 -0.4151
                                                 -0.4500
                                                            0.005
                                                                    J. 844 0. 010
                                                                                   0.842
                               1.056
            0.0500 -0.4243
                                                 -0.3500
                                                                    0.846 0.004
                                                                                   0.844
                                                           -0.001
                              1.071
            0.0400 -0.4527
                                                 -0.2500
                                                           -0.002
                                                                   0.849 0.002
                                                                                   0.849
                               1.054
            0.0300 -0.4159
                                                                    0.850 0.000
                                                 -0.1500
                                                           -0.010
                                                                                   0.845
                              0.868
            0.0100 -0.0461
                                                                   0.852 0.002
                                                 -0.0500
                                                           -0.012
                                                                                   0.846
                              0.687
            0.0050 0.3286
                                                 0.0500
                                                                   0.856 0.005
                                                           -0.021
                                                                                   0.843
                              0.068
            0.0000 1.1786
                                                 0.1500
                                                                   0.857 0.004
                                                           -0.020
                                                                                   0.848
            0.0050 0.7499
                              0.466
     53
                                                  0.2500
                                                                   0.859 0.002
                                                           -0.026
                                                                                   0.845
            0.0100 0.4921
                              0.606
      54
                                                  0.3500
                                                           -0.027
                                                                    0.859 0.001
                                                                                   0.849
                              0.755
            0.0200 0.1914
                                                  0.4500
                                                           -0.028
                                                                   0.959 -0.006
                                                                                   0.850
                              0.934
            0.0300 0.0285
      56
                                                  0.5500
                                                           -0.024
                                                                    0.857-0.002
                                                                                   0.848
            0.0400 -0.0742
                              0.883
      57
                                                  0.6500
                                                           -0.025
                                                                   0.857-0.004
                                                                                   0.847
            0.0500 -0.1391
                              0.916
     58
                                                                    0.854 -0.013
                                                 0.7500
                                                           -0.015
                                                                                   0.855
                              0.945
             0.0750 -0.1981
     50
                                                 0.9000
                                                                    0.853-0.007
                                                           -0.013
                              1.143
                                                                                   0.849
      12
             0.2000 -0.3879
                                                  1.0500
                                                                   0.852-0.009
                                                           -0.013
                                                                                   0.854
            0.2500 -0.4238
                              1.062
     63
                                                 1.2000
                                                           -0.008
                                                                    0.850-0.007
                                                                                   0.853
            0.3000 -0.4959
                               1.101
     64
                                                                    0.850 -0.004
                                                  1.3500
                                                           -0.010
                                                                                   0.850
             0.3500 -0.5811
                               1.148
      45
                                                  1.5000
                                                                    0.847-0.307
                                                           -0.002
                                                                                   0.952
                               1.190
            0.4000 -0.6567
     66
                                                 1.8000
                                                                    0.845 -0.002
                                                                                   0.851
                                                            0.004
                              1.221
            0.4500 -0.7090
     47
                                                  2.1000
                                                            0.004
                                                                    0.844 0.004
                                                                                   0.846
                              1.236
     69
             0.5000 -3.7348
                                                                    0.846 0.002
                                                  2.4000
                                                           -0.001
                              1.249
                                                                                   0.848
             0.5675 -0.7668
      40
                                                  2.7000
                                                           -0.005
                                                                   0.948-0.304
                                                                                   0.852
```

A STATE OF THE PART OF

```
=4982
                                PUN NUMBER
                                                                                TABLE 7.19
                                                 = 1
                                 SCAN NUMBER
                                 CENFIGURATION = CHEJJK
                                  FST MACH NUMBER = 0.756
                                 REYNOLDS NUMBER = 0.2969E 08
                                 INCIDENCE (NORTH) = 2.013
                                                =129.80PSIA
                                                 = 35.57PSI
                                 V/U (SIDEWALL) =0.0036
                                CN
                                                 = 0.400
                                 CX
                                                 =-.00401
                                 CMC4
                                                 =-0.0478
                                                 = 0.3995
                                CL
                                COP
                                                 = 0.0100
                       CP
                              MILOCALI
   ORIFICE
               X/C
          1.0000
                    0.2557
TE UPPER
                               0.651
                                                    ORIFICE X/C
                                                                       CP MILICALI
      51
            0.9500
                     0.1741
                              0.686
                                                      70
                                                            0.6000
                                                                    -0.3679 0.917
                     0.1252
           0.9250
                              0.708
      50
                                                            0.6500
                                                                    -0.3251
                                                      71
                                                                               0.900
                    0.0675
                               0.733
      40
            C. 9000
                                                            0.7000
                                                                     -0.1381
                                                      72
                                                                               0.821
            0.8600 -0.0660
      47
                              0.787
                                                      73
                                                            0.7250
                                                                     -0. 1265
                                                                               0.772
            0.8400 -0.1302
                               0.814
                                                      74
                                                             0.7500
                                                                      0.0577
                                                                               0.738
            0.8200 -0.1983
      45
                               0.844
                                                      75
                                                            0.7750
                                                                      0.1400 0.702
      43
            0.7800 -0.3426
                              0.906
                                                             0.8000
                                                                             0.682
                                                      76
                                                                      0.1875
            0.7600 -0.4015
                               0.931
      42
                                                      77
                                                            0.8250
                                                                      0.2296
            0.7400 -0.4549
                                                                               0.554
                              0.954
      41
                                                            0.8500
                                                      78
                                                                      0.2506
                                                                              0.655
            0.7200 -0.4864
      40
                              0.968
                                                            0.9000
                                                      79
                                                                      0.2605
                                                                              0.650
      39
            0.7000 -0.5073
                              0.977
                                                            0.9500
                                                      80
                                                                      0.2606
                                                                              0.648
      38
            0.6800 -0.5034
                              0.975
                                               TE LOWER
                                                            1.0000
                                                                      0.2557
                                                                             0.651
                               0.974
      37
            0.6600 -0.4979
            0.6400 -0.4858
                              0.969
      35
            0.6200 -0.4947
                              0.374
            0.6000 -0.5156
      34
                              0.983
            0.5800 -0.5561
                              1.001
      33
            0.5600 -0.6017
0.5400 -0.6315
      32
                              1.020
      31
                              1.035
                                                 STATIC PRESSURES AT CEILING AND FLOOR
            0.5200 -0.6458
      30
                              1.044
            0.5000 -0.7019
                              1.071
      28
            0.4750 -0.7020
                              1.071
                                                          CEILING
                                                                            FLOOR
                             1.060
                                                X/C
                                                                    M
      27
            0.4500 -0.6759
                                                           CP
            0.4250 -0.6663
0.4000 -0.6376
                             1.054
                                                           0.009
                                                                   0.759
                                                                          0.002
                                               -4.5000
                                                                                  0.761
      26
                                                -4.2000
                                                                   0.755
                                                                           0.002
                                                                                  0.760
                                                           0.014
      25
                   -0.6117
            0.3750
                                               -3.9000
                                                           0.002
                                                                   0.762
                                                                                   0.759
      24
                              1.028
                                                                          0.003
      23
            0.3500 -0.5932
                              1.019
                                               -3.6000
                                                           0.013
                                                                   0.759
                                                                         -0.002
                                                                                  0.760
                   -0.5621
                                               -3.3000
                                                                   0.757
      22
            0.3250
                             1.005
                                                           0.015
                                                                          0.005
                                                                                   0.760
      21
            0.3000
                    -0.5337
                              0.993
                                               -3.0000
                                                           0.016
                                                                   0.756
                                                                           0.007
                                                                                   0.758
                    -0.8553
                                               -2.7000
                                                           0.017
                                                                   0.756
                                                                           0.009
                                                                                   0.757
      19
            0.2375
                             1.136
                                                                   0.759
                                                                                   0.757
                              1.135
                                               -2.4000
      18
            0.2250
                    -0.8551
                                                           0.007
                                                                           0.008
                                                                   0.761
                                               -2.1000
                                                                                   0.755
            0.2000
                    -0.8714
                              1.145
                                                           0.005
                                                                           0.013
      17
                                               -1.8000
                                                           0.000
                                                                   0.761
                                                                           0.009
                                                                                  0.757
                    -0.8775
                             1.149
            0.1800
                                               -1.5000
                                                          -0.008
                                                                   0.765
                                                                           0.018
                                                                                  0.754
            0.1600
                              1.141
                    -0.8623
      15
                                               -1.3500
                                                                   0.763
                                                         -0.000
                                                                          -0.004
                                                                                  0.762
                    -0.8726
                             1.146
      14
            0.1400
                                               -1.2000
                    -0.8861 1.152
-C.8903 1.155
                                                         -0.006
                                                                   0.765
                                                                                  0.753
            0.1200
                                                                           0.020
      13
            0.1000
                                               -1.0500
                                                         -0.004
                                                                   0.764
                                                                           0.020
                                                                                  0.752
      12
                                               -0.9000
                                                         -0.006
                                                                   0.766
                                                                           0.020
                                                                                   0.752
                    -0.8830 1.151
            0.0900
      11
                                                                   0.766
                    -0.9049
                                               -0.7500
                                                          -0.009
                                                                           0.016
                                                                                   0.752
            0.0800
                             1.151
      10
                    -0.9245 1.172
-0.9647 1.194
                                               -0.6500
                                                          -0.017
                                                                   0.767
                                                                           0.018
                                                                                  0.752
       9
            0.0700
                                               -0.5500
                                                         -0.014
                                                                   0.767
                                                                           0.016
                                                                                   0.754
       8
            0.0600
                                                                   0.772
                                               -0.4500
                                                                                  0.756
                                                          -0.018
                                                                           0.010
            0.0500
                    -0.9770 1.201
                                                                   0.775
                                               -0.3500
                                                          -0.025
                                                                                   0.752
                    -0.9909
                              1.207
                                                                           0.019
            0.0400
                             1.168
                                               -0.25CO
                                                          -0.030
                                                                   0.774
                                                                           0.015
                                                                                   0.754
            0.0300
                    -0.9119
                              1.003
                                               -0.1500
                                                          -0.039
                                                                   0.776
                                                                           0.022
                                                                                   0.754
            C. 0100
                    -0.5617
                                                                   0.777
                                               -0.0500
                                                          -0.036
                                                                           0.027
                                                                                   0.753
                    -0.0655
                              0.791
            0.0050
                                                0.0500
                                                          -0.041
                                                                   0.778
                                                                           0.029
                                                                                   0.751
                      1.0840 0.166
            0.0000
                                                0.1500
                                                          -0.044
                                                                   0.778
                                                                           0.028
                                                                                  0.750
      53
            0.0050
                      0.8802
                             0.338
                                                0.2500
                                                          -0.043
                                                                   0.777
                                                                           0.031
                                                                                   0.751
      54
            0.0100
                      0.6464
                              0.471
                                                                   0.778
                                                0.3500
                                                                                   0.747
                                                          -0.041
                                                                           0.037
      55
            0.0200
                      0.3547
                             0.609
                                                0.4500
                                                                                   0.751
      56
            0.0300
                      0.1714
                             0.689
                                                          -0.042
                                                                   0.779
                                                                           0.029
                                                0.5500
                                                          -0.031
                                                                   0.775
                                                                           0.028
                                                                                   0.751
      57
            0.0400
                      0.0757
                              0.731
            0.0500
                      0.0140
                              0.757
                                                0.6500
                                                          -0.031
                                                                   0.775
                                                                           0.028
                                                                                   0.749
      58
                                                0.7500
                                                          -0.026
                                                                   0.771
                                                                          -0.003
                                                                                   0.763
            0.0750
                    -0.0569
                              0.787
      59
                                                0.9000
                              0.868
                                                          -0.028
                                                                   0.772
                                                                           0.025
      62
            0.2000
                    -0.2498
                                                1.0500
                                                          -0.018
                                                                   0.768
                                                                           0.023
                                                                                   0.752
      63
            0.2500
                    -0.3001
                              0.889
                                                                                   0.750
                                                1.2000
                                                          -0.016
                                                                   0.767
                                                                           0.030
            0.3000
                    -0.3497
                              0.911
                                                1.3500
                                                          -0.018
                                                                                   0.751
            0.3500
                    -0.3991
                              0.929
                                                                   0.769
                                                                           0.027
      65
                                                                                   0.752
            0.4000
                    -0.3873
                              0.929
                                                1.5000
                                                          -0.013
                                                                   0.766
                                                                           0.025
      66
                                                1.8000
                                                          -0.011
                                                                   0.766
                                                                           0.027
                                                                                   0.750
            0.4500
                    -0.3582
                              0.914
      67
            0.5000
                    -0.3401
                              0.905
                                                2.1000
                                                          -0.014
                                                                   0.766
                                                                           0.025
                                                                                   0.753
      68
                                                2.4000
                                                          -0.006
                                                                   0.763
                                                                           0.020
                                                                                   0.754
            0.5625
                              0.904
                     -0.3394
      69
                                                2.7000
                                                          -0.016
                                                                   0.767
                                                                           0.009
```

```
SURFACE PRESSURE MEASUREMENTS
RUN NUMBER = 4986
SCAN NUMBER = 1
CONFIGURATION = DHCJJK
TEST MACH NUMBER = 0.801
REYNOLDS NUMBER = 0.2996E 08
INCIDENCE(NORTH) = 2.000
PO = 127.00PSIA
Q = 37.41PSI
V/U (SIDEWALL) = 0.0034
CN = 0.393
CX = 0.00073
CMC4 = -0.0538
CL = 0.3931
CDP = 0.0145
```

| | | | CDF | - 0.01 | . 45 | | | |
|----------|--------|---------|----------|---------|------------|--------|---------|-----------|
| | | | | | | | | |
| ORIFI | E X/C | CP | MILOCALI | | | | | |
| TE UPPER | 1.0000 | 0.2575 | 0.688 | ORIF | ICE : | K/C | CP M | (LOCAL) |
| 51 | 0.9500 | 0.1866 | 0.722 | | | | | |
| 50 | 0.9250 | 0.1439 | 0.741 | | | | 0.4395 | 1.011 |
| 49 | 0.9000 | 0.0877 | 0.766 | | | | 0.3753 | C.980 |
| 47 | 0.8600 | -0.0259 | 0.817 | | | 7000 - | 0.1451 | 0.372 |
| | 0.8400 | -0.0740 | 0.939 | 7 | 3 0. | 7250 - | 0.0318 | 0.319 |
| 46 | | -0-1418 | 0.871 | 7 | 4 0. | 7500 | 0.0609 | 0.780 |
| 45 | 0.8200 | -0.2557 | 0.926 | 7 | 5 0. | 7750 | 0.1461 | 0.741 |
| 43 | 0.7800 | | 0.950 | 7 | 6 0.8 | 3000 | 0.1905 | 0.719 |
| 42 | 0.7600 | -0.3040 | 0.963 | 7 | 7 0.8 | 3250 | 0.2230 | 0.703 |
| 41 | 0.7400 | -0.3301 | | 7 | 8 0.8 | 3500 | 0.2493 | 0.692 |
| 40 | 0.7200 | -0.3328 | 0.965 | 7 | 9 0.9 | 9000 | 0.2682 | 0.684 |
| 39 | 0.7000 | -0.3581 | | 8 | 0 0.9 | 9500 | 0.2731 | 0.682 |
| 38 | 0.6800 | -0.3519 | 0.972 | TE LOWE | R 1.0 | 0000 | 0.2575 | 0.688 |
| 37 | 0.6600 | -0.3729 | 0.981 | | | | | |
| 36 | 0.6400 | -0.7095 | 1.147 | | | | | |
| 35 | 0.6200 | -0.7740 | 1.181 | | | | | |
| 34 | C.6000 | -0.8873 | 1.245 | | | | | |
| 33 | 0.5800 | -C.8978 | 1.250 | STATIC | DDECCUDE | C AT C | | ND 51 000 |
| 32 | 0.5600 | -0.8704 | 1.232 | STATIC | PKE S SUKE | S AT C | ILING A | ND FLOOR |
| 31 | 0.5400 | -0.8663 | 1.231 | | | | | |
| 30 | 0.5200 | -0.8576 | 1.228 | | | | | |
| 29 | 0.5000 | -0.8474 | 1.221 | | CEILIN | | FLOO | |
| 28 | 0.4750 | -0.8507 | 1.223 | X/C | CP | М | CP | М |
| 27 | 0.4500 | -0.8173 | 1.205 | -4.5000 | 0.007 | 0.804 | -0.000 | 0.806 |
| 26 | 0.4250 | -0.7863 | 1.189 | -4.2000 | 0.018 | 0.799 | 0.000 | 0.805 |
| 25 | 0.4000 | -0.8045 | 1.198 | -3.9000 | -0.005 | 0.807 | 0.007 | 0.805 |
| 24 | 0.3750 | -0.8283 | 1.212 | -3.6000 | 0.015 | 0.801 | 0.002 | 0.804 |
| 23 | 0.3500 | -0.8292 | 1.212 | -3.30CO | 0.016 | 0.800 | 0.007 | 0.804 |
| 22 | 0.3250 | -0.8239 | 1.210 | -3.0000 | 0.023 | 0.797 | 0.009 | 0.803 |
| 21 | 0.3000 | -0.8241 | 1.210 | -2.7000 | 0.022 | 0.798 | 0.012 | 0.805 |
| 19 | 0.2375 | -0.8212 | 1.203 | -2.4000 | 0.015 | 0.799 | 0.015 | 0.803 |
| 18 | 0.2250 | -0.8175 | 1.202 | -2.1000 | 0.012 | 0.802 | 0.014 | |
| 17 | 0.2000 | -0.8002 | 1.194 | -1.8000 | 0.003 | 0.805 | 0.016 | |
| 16 | 0.1800 | -0.7927 | 1.191 | -1.5000 | 0.005 | 0.805 | 0.021 | 0.797 |
| 15 | 0.1600 | -0.7695 | 1.181 | -1.3500 | 0.003 | 0.804 | | |
| 14 | C.1400 | -0.7615 | 1.179 | -1.2000 | 0.002 | 0.806 | | |
| 13 | 0.1200 | -0.7394 | 1.168 | -1.0500 | 0.005 | 0.806 | | |
| 12 | 0.1000 | -0.7466 | 1.172 | -0.9000 | -0.000 | 0.808 | | |
| | | | 1.153 | -0.7500 | -0.002 | 0.808 | | |
| 11 | 0.0900 | -0.7115 | 1.160 | -0.6500 | -0.009 | 0.811 | | |
| 10 | 0.0800 | -0.7279 | | -0.5500 | -0.016 | 0.813 | | |
| 9 | 0.0700 | -0.7863 | 1.189 | -0.4500 | -0.023 | 0.817 | | |
| 8 | 0.0600 | -0.7961 | 1.193 | -0.3500 | -0.028 | 0.820 | | |
| 7 | 0.0500 | -0.8088 | 1.200 | -0.2500 | -0.031 | 0.822 | | |
| 6 | 0.0400 | -0.7922 | 1.192 | -0.1500 | -0.039 | 0.828 | | |
| 5 | 0.0300 | -0.7226 | 1.154 | -0.0500 | -0.042 | 0.826 | | |
| 3 | 0.0100 | -0.3595 | 0.972 | 0.0500 | -0.048 | 0.829 | | |
| 2 | 0.0050 | 0.0919 | 0.766 | | -0.046 | 0.826 | | |
| 1 | 0.0000 | 1.1272 | 0.137 | 0.1500 | | 0.827 | | |
| 53 | 0.0050 | 0.8440 | 0.386 | 0.2500 | -0.048 | | | |
| 54 | 0.0100 | 0.6195 | 0.514 | 0.3500 | -0.048 | 0.827 | | |
| 55 | 0.0200 | 0.3248 | 0.659 | 0.4500 | -0.045 | 0.827 | | |
| 56 | 0.0300 | 0.1564 | 0.736 | 0.5500 | -0.035 | 0.823 | | |
| 57 | 0.0400 | 0.0532 | 0.783 | 0.6500 | -0.037 | 0.822 | | |
| 58 | 0.0500 | -0.0126 | 0.813 | 0.7500 | -0.027 | 0.821 | | |
| 59 | 0.0750 | -0.0887 | 0.848 | 0.9000 | -0.025 | 0.818 | | |
| 62 | 0.2000 | -0.2800 | 0.936 | 1.0500 | -0.025 | 0.817 | | |
| 63 | 0.2500 | -0.3390 | 0.964 | 1.2000 | -0.016 | 0.817 | | |
| 64 | 0.3000 | -0.4151 | 0.998 | 1.3500 | -0.019 | 0.816 | | |
| 65 | 0.3500 | -0.4937 | 1.035 | 1.5000 | -0.016 | 0.815 | | |
| 66 | 0.4000 | -0.5298 | 1.053 | 1.8000 | -0.014 | 0.814 | | |
| 67 | 0.4500 | -0.4319 | 1.007 | 2.1000 | -0.012 | 0.815 | | |
| 68 | 0.5000 | -0.3931 | 0.989 | 2.4000 | -0.008 | 0.814 | | |
| 69 | 0.5625 | -0.3935 | 0.987 | 2.70C0 | -0.019 | 0.814 | 0.012 | 0.802 |
| | | | | | | | | |

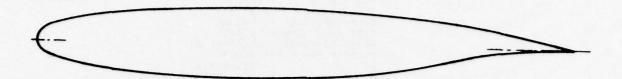
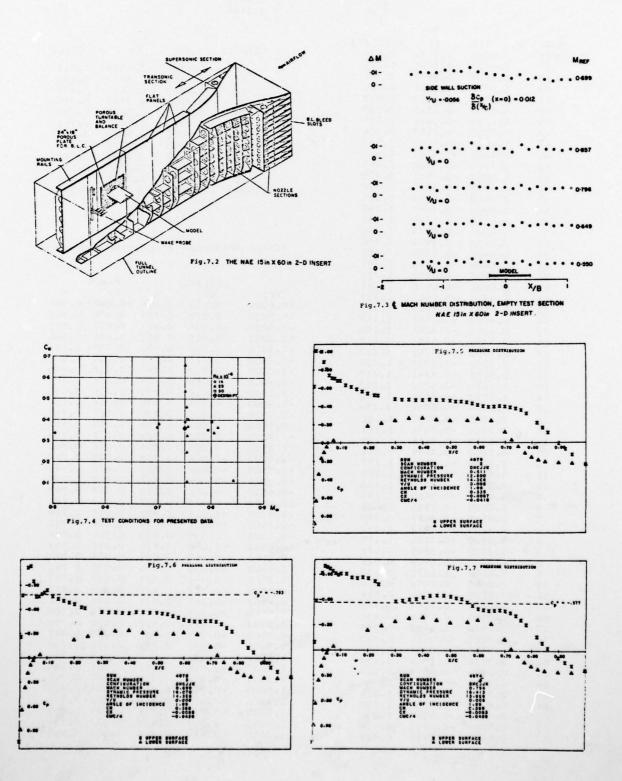
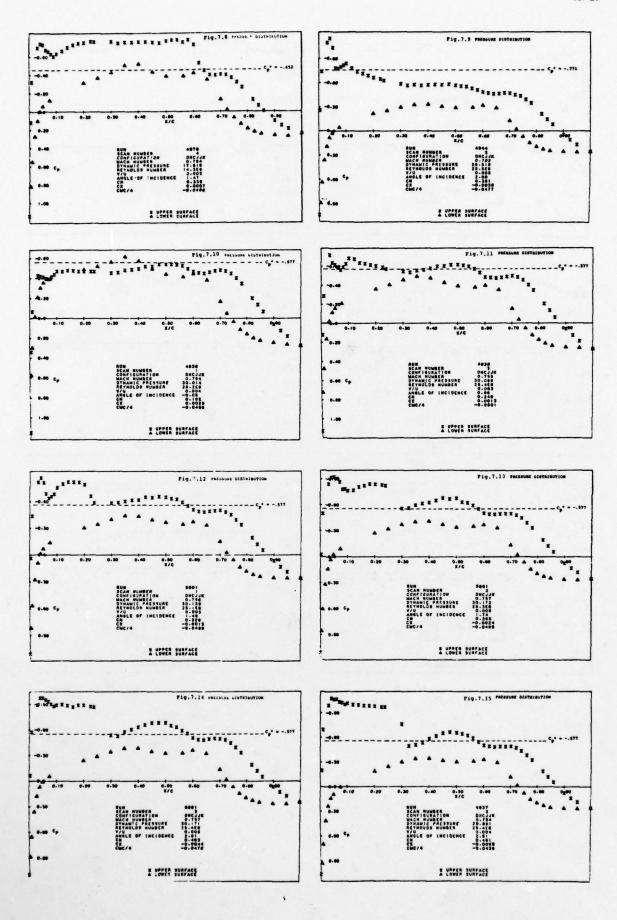
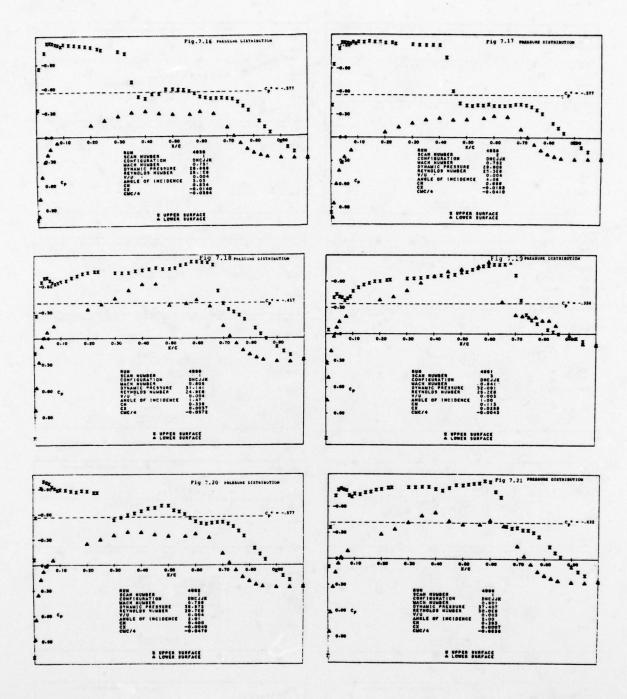


FIG. 7-1 NAE 75-036-13:2 AIRFOIL







8. SUPERCRITICAL AIRFOIL MBB~A3 Surface pressure distributions, wake and boundary condition measurements.

hv

Bucciantini G., Oggiano M.S., Onorato M. Aeritalia Torino, Politecnico di Torino

8.1 INTRODUCTION

The present data set, obtained testing the same model of the MBB-A3 airfoil at the A.R.A. Bedford wind tunnel and at the Turin Polytechnic wind tunnel (P.T.), covers a wide range of conditions: wholly subsonic flow, supercritical shockless or near shockless flow, supercritical flow with relatively strong shock wave producing, in some extreme cases, boundary layer separation. Moreover due to the great difference in Reynolds number between the two tunnels (the P.T. transonic facility is operated at low Reynolds number because of power limitations), different conditions of potential flow-boundary layer interaction are presented. In the cases of measurements with free transition, the Polytechnic of Turin experiments show a lambda shaped shock wave, typical of shock wave impinging on a laminar boundary layer; on the contrary for the A.R.A. results the interaction appears to be turbulent (it has to be noticed that even though the results from A.R.A. are transition free, the disturbances from the pressure holes are likely to promote transition upstream of the shock waves). Also on the lower surface the flow field shows different behaviour, due to the different growth of the boundary layer, particularly in the rear part of the section where a concavity is present.

The pressure distributions on the airfoil obtained in the two tunnels become comparable when the transition is fixed in the P.T. experiments, both on the upper and on the lower surface and when wall interference corrections are applied(see Fig. 8.6 and comments to Tables 8.4).

The MBB-A3 profile, designed by the Eberle hodograph method is supercritical, shockless, sloping roof-top. Moreover the MBB-A3 airfoil is the section for the MBB-AVA-Pilot Model (one of the 3-d configurations selected for the present data collection) and is the thinnest section for which data are presented. For all the cases reported surface pressure measurements are presented; experiments from A.R.A. wind tunnel include wake total and static pressure survey (only the values of the drag coefficients are reported here); data from P.T. wind tunnel include static pressure distributions above and below the model at a distance from the chord of about 2/3 of half-height of the test section. The last information is important in view of the aim of this data collection; if measured boundary conditions are available and are used for the assessment of computer programs, empirical corrections for tunnel wall interference are not necessary.

About the A.R.A. data the effective freestream conditions can be estimated applying the semi-empirical wall interference correction procedures given in the questionnaire (see 6.2.5).

Both A.R.A. and P.T. data presented here are not corrected for wall interference effects.

8.2 DATA SET

1. Airfoil

1.1 Airfoil designation

1.2 Type of airfoil

1.2.1 airfoil geometry nose radius maximum thickness base thickness

1.2.2 design condition design pressure distribution

1.3 Additional remarks

1.4 References on airfoil

2. Model geometry

2.1 Chord length

2.2 Span

2.3 Actual model co-ordinates and accuracy

2.4 Maximum thickness

2.5 Base thickness

2.6 Additional remarks

2.7 References on model

3. Wind tunnels

3.1 Designation

MBB-A3

Supercritical shockless Fig.8.1; Tables 8.1 and 8.2 0.0075 c 8.9%

0.3

 $M_{\infty} = 0.76$, $\alpha = 1.3^{\circ}$, $C_{L} = 0.58$ Fig.8.2 (reprinted from ref.[1])

None [1], [2]

0.127 m

0.203 m; 0.4 m (see 2.6)

Table 8.2 8.9%

0

The span of the same model, previously tested at the A.R.A. Bedford wind tunnel, has been increased for the tests in the Turin Polytechnic wind tunnel (Picture 1).

[1],[2]

A.R.A. Bedford 2D transonic tunnel (A.R.A.)
Galleria transonica e supersonica, Politecnico di
Torino (P.T.)

3.2 Type of tunnel

3.2.1 stagnation pressure

3.2.2 stagnation temperature

3.2.3 humidity/dew point

3.3 Test Section

3.3.1 dimensions

3.3.2 type of walls

3.4 Flow field (empty test section)

3.4.1 reference static pressure

3.4.2 flow angularity

3.4.3 Mach number distribution

3.4.4 pressure gradient

3.4.5 turbulence/noise level

3.4.6 side wall boundary layer

3.5 Additional remarks

3.6 References on wind tunnel

4. Tests

4.1 Type of measurements

4.2 Tunnel/model dimensions

4.2.1 height/chord ratio

4.2.3 width/chord ratio

4.3 Flow conditions included in present data

4.3.1 andle of attack

4.3.2 Mach number

4.3.3 Reynolds number

4.3.4 transition

- position of free transition

- transition fixing

4.3.5 temperature equilibrium

4.4 Additional remarks

4.5 References on tests

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 pressure holes

- spanwise stations

- chordwise positions

5.1.2 type of transducers and scanning devices

5.1.3 other

Blow down (A.R.A.); continuous(P.T.)

From 1.5 to 4 atmospheres(A.R.A.) up to 0.46 atmospheres (P.T.)

290°K(A.R.A.); 300°K (P.T.)

240°K(A.R.A.); 223°K (P.T.)

Rectangular (A.R.A.); square (P.T.)

0.457 m x 0.203 m (A.R.A.) 0.40 m x 0.40 m (P.T.)

Slotted top and bottom (A.R.A.-P.T.) open-area ratio of 3.2% (A.R.A.) open-area ratio of 50%;porosity is controlled by a moving plate inside the plenum chamber (see Fig. 8.5

and Picture 1)(P.T.)

On the top liner, 5 chords upstream of model L.E. (A.R.A.) at sidewall 2 chords upstream of model L.E. (P.T.)

+ 0.05° (A.R.A.)

Mach number gradient along the model: 0.001 up to $M_{\infty}=0.65,$ increasing to 0.002 at $M_{\infty}=0.82$ and to 0.003 at $M_{\infty}=0.85$ (A.R.A.)

Fig.8.3a (P.T.)

See 3.4.3

Under investigation using Kulite transducers (A.R.A.) $(\Delta C_p)_{R,M,S} = 0.014$ at $M_{\infty} = 0.75$, see also Fig.8.3b(P.T.)

 δ * = 1.5 mm for M_{∞} = 0.7 (A.R.A.) $M_{\infty} = 0.6$ $M_{\infty} = 0.7$ $M_{\infty} = 0.75$ $M_{\infty} = 0.8$ $\delta(U = 0.99 U_e) = 31 \text{ mm for}$ = 29.5mm for

(P.T.) = 28 mm for = 27 mm for

None

[1],[4] (A.R.A.); [3] (P.T.)

Surface pressures (A.R.A.-P.T.) wake pitot and static pressures (A.R.A.) static pressures above and below the model at a distance of 132 mm from the model chord (P.T.)

3.6 (A.R.A.); 3.15 (P.T.)

1.6 (A.R.A.); 3.15 (P.T.)

See Table 8.4a and 8.4b

See Table 8.4a and 8.4b

See Table 8.4a and 8.4b

No artificial trip, however pressure holes probably induce transition forward of shock wave.(A.R.A.)

free and fixed (P.T.)

not established ballotini (glass spheres), see Table 8.4b

Δt° during run 2 5°K (A.R.A.); yes (P.T.)

None

[1],[2] (A.R.A.)

 Φ = 0.25 mm on first 13% chord, 0.3 mm aft of 13% chord staggered along a V line in the central part of the mode 1 see Table 8.3

Scanivalve system with 25 P.S.I. differential ducer; backing pressure reservoir set at 22 P.S.I. (A.R.A.)

A manometer board is photographed; liquid: dibutyl phthalate (P.T.)

5.2 Wake measurements 5.2.1 type/size of instrument(s) Rake of 48 pitot and 3 static tubes; see Fig. 8.4(A.R.A) 5.2.2 streamwise position(s) 250 mm downstream of T.E.(A.R.A.) 5.2.3 type of transducer and scanning devices Scanivalve system with 7.5 P.S.I. differential transducer; backing pressure by uppermost rake pitot(A.R.A) 5.5 Flow visualization 5.5.1 flow field Schlieren photography (A.R.A.) 5.5.2 surface flow Two dimensionality was checked by oil flow (P.T.) 5.6 Boundary conditions measurements Static pressure distribution in the vicinity upper and lower walls (P.T.) 5.6.1 type/size of instruments Two conical static pressure probes with four orifices see Fia.8.5 (P.T.) 5.6.2 locations 132 mm from the model chord, moving in streamwise direction, at a distance of 200 mm from the sidewalls 5.7 Additional remarks None 5.8 References on instrumentation [4] (A.R.A.) 6. Data 6.1 Accuracy (wall interference excluded) 6.1.1 angle of attack setting $\pm 0.003^{\circ}$ (A.R.A.); $\pm 0.005^{\circ}$ (P.T.) 6.1.2 free stream Mach number: \pm 0.001 (A.R.A.); \pm 0.005 (P.T.) Variation negligible, pressuresall sealed simultaneous- setting - variation during one pressure scan ly in separate reservoirs and recorded after end of run (A.R.A.); none (P.T.) for static pressure measurements on the model; $\pm~0.005$ (P.T.) for static pressure measurements in the vicinity of the upper and lower test section walls $\Delta C_p=\pm~0.5\%$ (A.R.A.); model surface $~\Delta C_p<\pm~1\%$ of maximum value (P.T.); boundaries $~\Delta C_p<\pm~4\%$ of maximum value (P.T.) 6.1.3 pressure coefficients value (P.T.) 6.1.4 aerodynamic coefficients CM obtained from surface pressure distributions (A.R.A.-P.T.); CD obtained from wake total head and static pressures using an energy method [5] (A.R.A.) 6.1.5 boundary layer quantities Model boundary layer not measured (A.R.A.-P.T.) 6.1.6 repeatability $\Delta C_p = \Delta C_L = \Delta C_M = \pm 0.5\%$; $\Delta C_D = \pm 2\%$ (A.R.A.) $\Delta C_{D} < \pm 1\%$ of maximum value (P.T.) 6.1.7 remarks The two probes used for the static pressure measurements (P.T.) on the upper and lower boundaries have been calibrated and their behaviour for small angle of yaw, ψ , has been verified. $\psi = 2^{\circ}$ For $M_{\infty} = 0.75$ $\Delta p/q = 0.002$ $\psi = 5^{\circ}$ $\Delta p/q = 0.005$ $\psi = 7^{\circ}$ $\Delta p/q = 0.009$ 6.2 Wall interference corrections 6.2.1 angle of attack See 6.2.5 (A.R.A.); $\Delta \alpha^{\circ} \simeq -1.4 \text{ C}_{\perp}$ at $M_{\infty} = 0.75 \text{ (P.T.)}$ 6.2.2 blockage (solid/wake) Negligible (A.R.A.-P.T.) 6.2.3 streamline curvature (lift) See 6.2.1 6.2.4 other 6.2.5 remarks Standard expressions used for downwash and curvature ef- $\Delta \alpha = (c/h)C_{L}\delta_{0} + (c/h)^{2}(0.25 C_{L} + C_{M})\delta_{i}/\beta$ $\Delta C_L = -(\pi/2)(c/\beta h)^2 \delta_1 C_L$ $\Delta C_{\mathbf{M}} = (\pi/8)(c/\beta h)^2 \delta_1 C_{\mathbf{L}}$ the constants δ_0 and δ_1 for A.R.A. tunnel [4] have been derived testing at same Re three models of the NPL 3111 (RAE 2815) section having chord lenghts of 3",5" and 7''; $\delta_0 = -0.03$, $\delta_1 = 0.11$ (A.R.A.) 6.2.6 references on wall interference correction [4], [6] 6.3 Presentation of data 6.3.1 aerodynamic coefficients C_L , C_M and C_D see Tables 8.4a (A.R.A.) and 8.4b(P.T.) $C_{\rm p}$ and p/p₀ vs. x/c see Tables 8.5 (A.R.A.), 8.6 (P.T.) and Figs. 8.6 (A.R.A.-P.T.); 8.7(A.R.A.), 8.8 (P.T.) 6.3.2 surface pressures

- 6.3.3 pressures on boundaries
- See Table 8.7 and Fig. 8.8 (P.T.)
- 6.3.4 wall interference corrections included?
 - No (A.R.A.-P.T.)
- 6.3.5 corrections for model deflection
- No (A.R.A.-P.T.)
- 6.3.6 empty test section calibration taken into No (A.R.A.-P.T.) account ?
- 6.3.7 other corrections included?
- No (A.R.A.-P.T.)
- 6.3.8 additional remarks a) Wall interference corrections for A.R.A. data can
 - be calculated by expressions given in 6.2.5; b) wall interference corrections for P.T. data are not necessary for the assessment of computer programs if the actual boundary conditions, wich are given, are used.
- 6.4 Were tests carried out in different facili- Yes, A.R.A. and P.T. wind tunnels; yes ties on the current airfoil ? If so, what facilities. Are data included in the present data base?

the many to the state of the st

- 6.5 To be contacted for further information on Mr.B.F.L. HAMMOND A.R.A. Manton Lane, Bedford, MK41 tests
 - 7PF (England) Mr.M.ONORATO - Istituto di Meccanica Applicata Politecnico di Torino - C.so Duca degli Abruzzi,24 -10129 TORINO (Italy)

7. References

8. List of Symbols

- [1] A. Eberle; P. Sacher: MBB 4.02-4 Tragflügelentwurf für transsonische Strömungen, 1973
- [2] B.F.L. Hammond: A.R.A. Tests on Airfoil S 126/3,1974
- [3] C. Ferrari; G. Jarre; S. Nocilla: La Ricerca Scientifica, vol.2, n.2, 1963
- [4] B.F.L. Hammond: Some Notes on Model Testing in the A.R.A. Two-Dimensional Facility, A.R.A. Mem.n.170 ,
- [5] Computation for Two-Dimensional Airfoils, A.R.A Mem. n.73
- [6] H.C. Garner; E.W.E. Rogers; W.F.A. Acum; F.C. Maskell: Subsonic Wind Tunnel Wall Corrections, AGARDograph, 109,1966
- free stream Mach number
- flow velocity
- local static pressure
- free stream static pressure
- free stream total pressure
- $\Delta p = p_{true} p_{measured}$
- dynamic pressure
- free stream dynamic pressure
- Reynolds number based on model chord
- $C_p = (p p_\infty)/q_\infty$ pressure coefficient
- lift coefficient
- normal force coefficient
- pitching moment coefficient (0.25 c)
- drag coefficient airfoil chord CD
- tunnel height
- nondimensional streamwise coordinate; origin L.E.
- nondimensional ordinate of the airfoil contour z/c
- angle of attack, deg α
- $\sqrt{1 M_{\infty}^2}$ B =
- boundary layer thickness
- boundary layer displacement thickness

Subscripts

- upper contour
- lower contour
- thickness t chamber C
- external flow

Table 8.1

MBB-A3 - THEORETICAL CONTOUR

| x/c | z _u /c | z _l /c | z _t /c | z _c /c |
|----------|----------------------|------------------------|------------------------|-----------------------|
| 0.002500 | 0.009472 | -0.003676 | 0.006574 | 0.002898 |
| 0.007500 | 0.015110 | -0.005750 | 0.010430 | 0.004680 |
| 0.012500 | 0.018602 | -0.007000 | 0.012801 | 0.005801 |
| 0.017500 | 0.021271 | -0.008040 -0.008880 | 0.0146555 | 0.0066155 |
| 0.027500 | 0.025271 | -0.009590 | 0.0174305 | 0.0078405 |
| 0.032500 | 0.026860 | -0.010215 | 0.0185375 | 0.0083225 |
| 0.037500 | 0.028280 | -0.010776 | 0.019528 | 0.008752 |
| 0.042500 | 0.029574 | -0.011290 | 0.020432 | 0.009142 |
| 0.048000 | 0.030889 | -0.011819 | 0.021354 | 0.009535 |
| 0.054050 | 0.032229 | -0.012380 | 0.0223045 | 0.0099245 |
| 0.060700 | 0.033593 | -0.012992 -0.013666 | 0.0232925 0.0253285 | 0.0103005 |
| 0.076100 | 0.036412 | -0.014401 | 0.0254065 | 0.0110055 |
| 0.084950 | 0.037847 | -0.015203 | 0.026525 | 0.011322 |
| 0.094700 | 0.039313 | -0.016077 | 0.027695 | 0.011618 |
| 0.105400 | 0.040803 | -0.017024 | 0.0289135 | 0.0118895 |
| 0.117200 | 0.042312 | -0.018051 | 0.0301815 | 0.0121305 |
| 0.130150 | 0.043834 0.045361 | -0.019151 -0.020327 | 0.0314925 0.032844 | 0.0123415 |
| 0.160100 | 0.046890 | -0.020327 | 0.035233 | 0.012657 |
| 0.177350 | 0.048399 | -0.022886 | 0 0356425 | 0.0127565 |
| 0.196350 | 0.049878 | -0.024248 | 0.037063 | 0.012815 |
| 0.217200 | 0.051306 | -0.025636 | 0.038471 | 0.012835 |
| 0.240000 | 0.052654 | -0.027015 | 0.0398345 | 0.0128195 |
| 0.265450 | 0.053916 0.054934 | -0.028370 -0.029509 | 0.041143 | 0.012773 0.0127125 |
| 0.316000 | 0.055728 | -0.030421 | 0.0430745 | 0.0126535 |
| 0.341300 | 0.056308 | -0.031096 | 0.043702 | 0.0126060 |
| 0.366550 | 0.056676 | -0.031516 | 0.044096 | 0.012580 |
| 0.391850 | 0.056833 | -0.031669 | 0.044251 | 0.012582 |
| 0.417100 | 0.056780 0.056509 | -0.031541 -0.031119 | 0.0441605 0.043814 | 0.0126195 0.012695 |
| 0.467650 | 0.056016 | -0.030393 | 0.0432045 | 0.0128115 |
| 0.492900 | 0.055295 | -0.029353 | 0.042324 | 0.012971 |
| 0.518200 | 0.054328 | -0.027998 | 0.041163 | 0.013165 |
| 0.540950 | 0.053243 | -0.026550 | 0.0398965 | 0.0133465 |
| 0.561400 | 0.052091 | -0.025107 | 0.038599 | 0.013492 |
| 0.579850 | 0.050905 | -0.023725 -0.022444 | 0.037315 0.036083 | 0.013590 |
| 0.611350 | 0.048555 | -0.021269 | 0.034912 | 0.013643 |
| 0.625000 | 0.047410 | -0.020188 | 0.033799 | 0.013611 |
| 0.636850 | 0.046353 | -0.019247 | 0.032800 | 0.013553 |
| 0.647750 | 0.045329 | -0.018381 | 0.031855 | 0.013474 |
| 0.657550 | 0.044366 | -0.017604 -0.016835 | 0.030985 0.0301025 | 0.013381 |
| 0.678100 | 0.042221 | -0.015989 | 0.029105 | 0.013116 |
| 0.689950 | 0.040906 | -0.015073 | 0.0279895 | 0.0129165 |
| 0.702950 | 0.039401 | -0.014089 | 0.026745 | 0.012656 |
| 0.717300 | 0.037664 | -0.013033 | 0.0253485 | 0.0123155 |
| 0.733050 | 0.035672 | -0.011914 -0.010734 | 0.023793 0.0220595 | 0.011879 0.0113255 |
| 0.769500 | 0.030772 | -0.009503 | 0.0201375 | 0.0106345 |
| 0.790500 | 0.027816 | -0.008234 | 0.018025 | 0.009791 |
| 0.813550 | 0.024526 | -0.006941 | 0.0157335 | 0.0087925 |
| 0.838950 | 0.020920 | -0.005632 | 0.013276 | 0.007644 |
| 0.864350 | 0.017419 | -0.004440 | 0.0109295 | 0.0064895 |
| 0.907800 | 0.014355 | -0.003471 -0.002689 | 0.008913 | 0.003442 |
| 0.926300 | 0.009265 | -0.002060 | 0.0056625 | 0.0036025 |
| 0.942050 | 0.007258 | -0.001572 | 0.004415 | 0.002843 |
| 0.955400 | 0.005573 | -0.001186 | 0.0033795 | 0.0021935 |
| 0.966750 | 0.004149 | -0.000873 -0.000569 | 0.002511 | 0.001638 |
| 0.989450 | 0.002/30 | -0.000369 | 0.0016495 | 0.0005205 |
| 1.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| | | | | |

Table 8.2

ACTUAL MODEL CO-ORDINATES AND ACCURACY

| x/c | z _u /c | ΔZ _u /c | Z _l /c | ΔZ _ℓ /c |
|---------|-------------------|--------------------|-------------------|--------------------|
| 0.08477 | 0.03784 | 0.00008 | 0.01517 | ±0.00000 |
| 0.10518 | 0.04081 | 0.00010 | 0.01690 | -0.00008 |
| 0.12988 | 0.04371 | -0.00002 | 0.01898 | -0.00012 |
| 0.15976 | 0.04686 | 0.00008 | 0.02136 | -0.00016 |
| 0.19594 | 0.04978 | 0.00002 | 0.02391 | -0.00028 |
| 0.23950 | 0.05253 | ±0.00000 | 0.02662 | -0.00032 |
| 0.29014 | 0.05473 | -0.00008 | 0.02900 | -0.00044 |
| 0.34058 | 0.05616 | -0.00002 | 0.03048 | -0.00054 |
| 0.39103 | 0.05670 | ±0.00000 | 0.03099 | -0.00060 |
| 0.44147 | 0.05640 | 0.00002 | 0.03038 | -0.00068 |
| 0.49187 | 0.05520 | 0.00004 | 0.02868 | -0.00060 |
| 0.53982 | 0.05323 | 0.00010 | 0.02589 | -0.00050 |
| 0.57863 | 0.05085 | 0.00006 | 0.02315 | -0.00052 |
| 0.61007 | 0.04858 | 0.00014 | 0.02070 | -0.00052 |
| 0.63552 | 0.04626 | 0.00002 | 0.01880 | -0.00040 |
| 0.65617 | 0.04431 | 0.00004 | 0.01710 | -0.00046 |
| 0.67668 | 0.04217 | 0.00004 | 0.01549 | -0.00046 |
| 0.70148 | 0.03932 | ±0.00000 | 0.01359 | -0.00046 |
| 0.73151 | 0.03561 | 0.00002 | 0.01132 | -0.00056 |
| 0.76789 | 0.03070 | +0.00000 | 0.00898 | -0.00050 |
| 0.81185 | 0.02451 | 0.00004 | 0.00643 | -0.00050 |
| 0.86254 | 0.01744 | 0.00008 | 0.00391 | -0.00052 |
| 0.90590 | 0.01158 | ~0 00004 | 0.00220 | -0.00048 |
| 0.94008 | 0.00726 | 0.00004 | 0.00106 | -0.00050 |
| 0.96472 | 0.00417 | 0.00004 | 0.00040 | -0.00046 |
| 0.98738 | 0.00136 | 0.00006 | 0.00012 | -0.00014 |
| | | | | |
| | | | | |

Table 8.3

MBB-A3 - PRESSURE POINT POSITIONS

| Uppe | r Surface | Lower | Surface |
|-----------------------|------------------------|--------|--|
| n. | x/c | n. | x/c |
| 1 | 0.0004 | 1 | 0.0000 (Leading Edge) |
| 2 3 | 0.0037 | 2 | 0.0009 |
| 3 | 0.0065 | 3 | 0.0031 |
| 4 | 0.0109 | 4 | 0.0053 |
| 5 6 7 8 9 | 0.0154 | 5 | 0.0114 |
| 6 | 0.0200 | 6 | 0.0190 |
| 7 | 0.0305 | 7 | 0.0495 |
| 8 | 0.0506 | 8 | 0.0997 |
| | 0.0753 | 9 | 0.1471 |
| 10 | 0.1005 | 10 | 0.1988 |
| 11 | 0.1495 | 11 | 0.2989 |
| 12 | 0.2003 | 12 | 0.3998 |
| 13 | 0.2498 | 13 | 0.4990 |
| 14 | 0.2992 | 14 | 0.5986 |
| 15 | 0.3498 | 15 | O.7286 |
| 16 | 0.4002 | 16 | 0.2989 0.3998 0.4990 0.5986 0.7286 0.8680 0.9484 |
| 17 | 0.4499 | 17 | 0.9484 |
| 18 | 0.4983 | | 99 |
| 19 | 0.5493 | | 8 |
| 20 | 0.5994 | 7777 | |
| 21 | 0.6487 | 111111 | |
| 22 | 0.7196 | | |
| 23 | 0.8001 | /// | |
| 24 | 0.8483 | | |
| 25 | 0.9283 | | |
| 26 | 1.0000 (Trailing Edge) | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | _ / |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

FLOW CONDITIONS INCLUDED MBB-A3 Airfoil A.R.A. Bedford Tunnel

Table 8.4a

| Run | M_{∞} | α° | Re × 10 ⁻⁶ based on chord | $c_{\mathtt{L}}$ | См (0.25c) | c _D |
|-----|--------------|------|---|------------------|---------------|----------------|
| 84 | 0.700 | 2.01 | 6.08 | 0.501 | -0.0494 | 0.00785 |
| 86 | 0.700 | 3.02 | 6.26 | 0.649 | -0.0455 | 0.00877 |
| 88 | 0.699 | 4.01 | 6.21 | 0.841 | -0.0393 | 0.01561 |
| 93 | 0.698 | 5.00 | 6.17 | 1.003 | -0.0414 | 0.03085 |
| 94 | 0.698 | 5.49 | 6.17 | 1.024 | -0.0405 | 0.03720 |
| 4 | 0.750 | 1.71 | 6.18 | 0.512 | -0.0566 | 0.00831 |
| 13 | 0.755 | 1.89 | 6.01 | 0.553 | -0.0562 | 0.00818 |
| 17 | 0.759 | 1.50 | 6.00 | 0.487 | -0.0578 | 0.00780 |
| 18 | 0.760 | 1.89 | 6.01 | 0.564 | -0.0577 | 0.00803 |
| 22 | 0.760 | 2.21 | 6.01 | 0.626 | -0.0583 | 0.00870 |
| 23 | 0.760 | 2.75 | 6.00 | 0.734 | -0.0643 | 0.01518 |
| 24 | 0.758 | 3.73 | 5.98 | 0.880 | -0.0851 | 0.04110 |
| 25 | 0.761 | 4.74 | 6.00 | 0.920 | -0.1039 | 0.06458 |
| 16 | 0.765 | 1.89 | 6.00 | 0.574 | -0.0597 | 0.00832 |
| 44 | 0.771 | 1.90 | 6.09 | 0.594 | -0.0648 | 0.00952 |
| 100 | 0.798 | 2.01 | 6.20 | 0.641 | -0.0992 | 0.02744 |
| 106 | 0.801 | 5.01 | 6.13 | 0.837 | -0.1174 | 0.07859 |
| 113 | 0.850 | 2.01 | 6.08 | 0.515 | -0.1165 | 0.03236 |
| 118 | 0.851 | 4.47 | 6.12 | 0.716 | -0.1227 | 0.05897 |

Table 8.4b FLOW CONDITIONS INCLUDED MBB-A3 Airfoil - Polytechnic of Turin Tunnel

| Run | M∞ | α° | Re × 10 ⁻⁶ based on chord | CN | C _M (0.25c) | Transition trip (°) | Boundary conditions |
|------|-------|------|---|-------|---------------------------|---------------------|---------------------|
| P33 | 0.751 | 1.12 | 0.400 | 0.368 | -0.0484 | no | yes |
| P36 | 0.768 | 2.25 | 0.406 | 0.483 | -0.0413 | no | yes |
| P96 | 0.759 | 2.83 | 0.403 | 0.566 | -0.0380 | yes | yes |
| P97 | 0.759 | 3.48 | 0.403 | 0.618 | -0.0369 | yes | yes |
| P37 | 0.754 | 4.61 | 0.401 | 0.712 | -0.0343 | no | yes |
| P78 | 0.765 | 4.61 | 0.405 | 0.783 | -0.0497 | yes | no |
| P39 | 0.802 | 1.30 | 0.419 | 0.399 | -0.0614 | no | yes |
| P99 | 0.795 | 2.00 | 0.414 | 0.511 | -0.0593 | yes | yes |
| P40 | 0.793 | 2.90 | 0.414 | 0.562 | -0.0568 | no | yes |
| P108 | 0.797 | 3.90 | 0.416 | 0.685 | -0.0656 | yes | yes |
| P41 | 0.799 | 5.43 | 0.419 | 0.704 | -0.0617 | no | yes |
| P81 | 0.800 | 5.43 | 0.419 | 0.754 | -0.0720 | yes | no |
| P100 | 0.849 | 0.80 | 0.434 | 0.375 | -0.0871 | yes | yes |
| P13 | 0.848 | 1.77 | 0.433 | 0.355 | -0.0791 | no | no |
| P82 | 0.851 | 1.77 | 0.436 | 0.419 | -0.0772 | yes | no |
| P109 | 0.842 | 2.00 | 0.432 | 0.521 | -0.0910 | yes | yes |
| P102 | 0.841 | 3.20 | 0.432 | 0.592 | -0.0841 | yes | yes |
| P85 | 0.855 | 4.18 | 0.438 | 0.619 | -0.0831 | yes | no |

^(°) Transition trip device: ballotini, average diameter 0.2mm, position $x/c = 0.28 \div 0.30$ on upper surface, $x/c = 0.39 \div 0.41$ on lower surface. The location of transition has not been verified. Transition likely occurs close to the lead-

ing edge for the A.R.A. tests and at the position of the tripping device (may be in some cases near downstream) for the P.T. tests.

The different location of transition between A.R.A. and P.T. experiments may explain the adverse Reynolds number effect on separation shown in Fig.8.6.

Table 8.5
SURFACE PRESSURE DISTRIBUTION - A.R.A. BEDFORD

| Run | 8 | 34 | 8 | | 8 | 38 | | 93 | | 94 |
|--|--|---|---|--|---|--|---|---|---|---|
| M _∞ | | 700 | | 700 | | 699 | | 698 | | 698 |
| α° | 2. | 01 | 3. | 02 | 4. | 01 | 5. | .00 | 5. | 49 |
| x/c Upper | c_{p} | p/p _o | $c_{\mathbf{p}}$ | p/p _o | c ^b | p/p ₀ | Cp | p/p _o | c _p | p/p _o |
| 1.000 0.928 0.848 0.800 0.720 0.649 0.599 0.549 0.498 0.450 0.299 0.250 0.200 0.101 0.075 0.051 0.031 0.020 0.015 0.011 | 0.103 0.060 -0.044 -0.116 -0.272 -0.397 -0.468 -0.538 -0.564 -0.595 -0.612 -0.622 -0.658 -0.670 -0.722 -0.805 -0.838 -1.058 -0.817 -0.566 -0.817 -0.566 -0.182 0.221 0.958 | .7462 .7355 .7099 .6921 .6533 .6225 .6049 .5900 .5811 .5755 .5734 .5693 .5669 .5549 .5549 .5419 .5215 .5132 .4589 .4578 .5089 .5184 .5806 .6757 .7754 | 0.102 0.056 -0.052 -0.125 -0.288 -0.421 -0.501 -0.569 -0.614 -0.681 -0.686 -0.698 -0.558 -1.191 -1.324 -1.346 -1.393 -1.286 -1.218 -0.871 -0.465 -0.029 0.801 | .7460 .7345 .7080 .6897 .6495 .6166 .5969 .5799 .5689 .5573 .5522 .5509 .5480 .3836 .3761 .3834 .4025 .4195 .5052 .6058 .7136 .9188 | 0.099 0.052 -0.057 -0.131 -0.294 -0.425 -0.501 -0.564 -0.589 -0.584 -0.552 -0.564 -1.149 -1.462 -1.511 -1.512 -1.566 -1.635 -1.600 -1.519 -1.441 -1.117 -0.694 -0.247 0.616 | .7461 .7345 .7075 .6895 .6491 .6168 .5980 .5826 .5764 .5777 .5855 .5824 .4382 .3610 .3489 .3487 .3353 .3349 .3182 .3268 .3469 .3661 .4460 .5505 .6607 .8736 | 0.083 0.042 -0.064 -0.130 -0.275 -0.382 -0.437 -0.448 -0.482 -0.712 -0.902 -1.606 -1.631 -1.672 -1.673 -1.719 -1.731 -1.792 -1.744 -1.669 -1.595 -1.289 -0.888 -0.421 0.466 | .7427 .7324 .7062 .6902 .6545 .6280 .6145 .6117 .6033 .5467 .4999 .3265 .3202 .3188 .3100 .2985 .2957 .2805 .2957 .2805 .2923 .3108 .3292 .4045 .5034 .6183 .8370 | 0.068 0.028 -0.078 -0.142 -0.280 -0.383 -0.437 -0.445 -0.518 -0.776 -0.939 -1.366 -1.682 -1.723 -1.726 -1.725 -1.772 -1.786 -1.785 -1.797 -1.720 -1.650 -1.351 -0.959 -0.485 0.410 | .7391 .7292 .7031 .6876 .6534 .6281 .6147 .6128 .5949 .5314 .4911 .3861 .3083 .3053 .2984 .2975 .2862 .2829 .2683 .2991 .3162 .3897 .4864 .6029 .8234 |
| 0.000 0.001 0.003 0.005 0.011 0.019 0.050 0.100 0.147 0.199 0.299 0.400 0.499 0.599 0.729 0.868 0.948 | 1.125 0.877 0.421 0.444 0.307 0.246 0.172 0.098 0.035 -0.067 -0.111 -0.120 0.002 0.106 0.155 0.178 | .9990 .9376 .8248 .8306 .7966 .7816 .7790 .7633 .7450 .7294 .7040 .6932 .6910 .7211 .7470 .7591 | 1.121 1.044 0.726 0.708 0.520 0.434 0.361 0.269 0.184 0.114 0.001 -0.053 -0.074 0.034 0.128 0.168 0.185 | .9981 .9790 .9004 .8960 .8494 .8281 .8100 .7873 .7664 .7489 .7210 .7077 .7025 .7293 .7524 .7622 .7664 | 1.060 1.116 0.921 0.864 0.682 0.584 0.472 0.360 0.269 0.191 0.071 0.007 -0.025 0.071 0.152 0.183 0.195 | . 9832 . 9969 . 9489 . 9348 . 8900 . 8659 . 8381 . 8105 . 7879 . 7688 . 7391 . 7233 . 7156 . 7392 . 7593 . 7668 . 7697 | 0.957 1.127 1.022 0.958 0.789 0.688 0.550 0.425 0.328 0.246 0.120 0.048 0.008 0.094 0.166 0.189 0.195 | .9580 .9997 .9739 .9581 .9164 .8916 .8575 .8269 .8030 .7828 .7517 .7340 .7241 .7453 .7630 .7686 .7702 | 0.910 1.126 1.049 0.986 0.822 0.716 0.574 0.445 0.262 0.132 0.056 0.013 0.094 0.163 0.182 | .9463 .9996 .9806 .9650 .9247 .8988 .8637 .8319 .8077 .7869 .7548 .7363 .7255 .7456 .7624 .7671 |
| Run | | 4 | | 3 | | 7 | | 18 | | 22 |
| M _∞ | | 750 | | 755 | | 759 | | 760 | | 760 |
| α° | 1. | 71 | 1. | 89 | 1. | 50 | 1. | 89 | 2. | 21 |
| x/c Upper | Cp | p/p _o | Cp | p/p _o | Cp | p/p ₀ | Cp | p/p _o | Cp | p/po |
| 1.000 0.928 0.848 0.800 0.720 0.649 0.599 0.549 0.498 0.450 0.400 0.350 0.299 0.250 0.200 0.150 | 0.119 0.067 -0.032 -0.112 -0.278 -0.420 -0.517 -0.611 -0.633 -0.685 -0.667 -0.669 -0.663 -0.805 -0.802 -0.792 -0.817 | .7208 .7067 .6800 .6583 .6133 .5747 .5485 .5231 .5172 .5028 .5023 .5099 .5090 .4704 .4712 .4741 | 0.120 0.069 -0.029 -0.111 -0.278 -0.418 -0.521 -0.618 -0.688 -0.627 -0.786 -0.87 -0.887 -0.887 -0.889 | .7180 .7041 .6770 .6547 .6090 .5707 .5426 .5159 .5082 .4968 .5136 .4700 .4454 .4497 .4423 .4506 | 0.120 0.071 -0.027 -0.107 -0.274 -0.413 -0.515 -0.609 -0.650 -0.701 -0.657 -0.682 -0.729 -0.786 -0.786 -0.786 | .7156 .7020 .6752 .6529 .6070 .5687 .5405 .5148 .5034 .4894 .4816 .4816 .4659 .4764 .4815 | 0.121 0.072 -0.027 -0.109 -0.277 -0.417 -0.519 -0.609 -0.593 -0.698 -0.826 -0.865 -0.888 -0.877 -0.894 -0.856 -0.882 | .7153 .7016 .6743 .6518 .6056 .5668 .5387 .5139 .5184 .4894 .4541 .4433 .4369 .4400 .4351 .4457 | 0.122 0.072 -0.026 -0.108 -0.271 -0.400 -0.479 -0.502 -0.601 -0.972 -0.972 -0.985 -0.968 -0.949 -0.974 -0.958 | .7154 .7018 .6746 .6522 .6071 .5714 .5497 .5435 .5162 .4138 .4100 .4147 .4202 .4131 .4224 .4175 |

| x/c | | | | | Table 8.5 (c | | | | | |
|---|--|--|---|---|---|--|---|---|---|--|
| Upper | c _p | p/p _o | Сp | p/po | $c_{\mathbf{p}}$ | p/p _o | c _p | p/p _o | Cp | p/po |
| 0.075 0.051 0.031 0.020 0.015 0.011 0.007 0.004 | -0.866 -0.933 -0.773 -0.626 -0.595 -0.351 0.038 0.414 1.061 | .4540 .4358 .4791 .5188 .5273 .5936 .6990 .8010 | -0.905 -0.948 -0.788 -0.651 -0.626 -0.373 0.017 0.395 1.054 | .4374 .4257 .4695 .5068 .5137 .5829 .6898 .7932 .9734 | -0.764 -0.845 -0.688 -0.535 -0.496 -0.260 0.113 0.487 1.089 | .4721 .4493 .4930 .5351 .5459 .6108 .7135 .8166 .9824 | -0.892 -0.930 -0.770 -0.633 -0.606 -0.356 0.033 0.408 1.059 | .4357 .4252 .4693 .5074 .5146 .5835 .6910 .7945 .9741 | -0.962 -0.985 -0.835 -0.712 -0.698 -0.431 -0.035 0.341 1.033 | .4164 .4100 .4514 .4854 .4893 .5630 .6722 .7761 |
| 0.000 0.001 0.003 0.005 0.011 0.019 0.050 0.100 0.147 0.199 0.299 0.400 0.499 0.599 0.729 0.868 0.948 | 1.144 0.762 0.257 0.319 0.214 0.163 0.188 0.134 0.060 0.010 -0.097 -0.142 -0.141 -0.011 0.105 0.165 0.189 | .9987 .8953 .7584 .7750 .7466 .7328 .7396 .7251 .7049 .6915 .6623 .6502 .6504 .6857 .7158 .7334 .7398 | 1.148 0.804 0.318 0.369 0.257 0.198 0.215 0.158 0.080 0.028 -0.073 -0.131 -0.131 -0.004 0.106 0.106 0.190 | . 9992 . 9051 . 7722 . 7859 . 7554 . 7391 . 7440 . 7282 . 66927 . 6651 . 6492 . 6493 . 6890 . 7140 . 7295 . 7372 | 1.142 0.695 0.159 0.243 0.156 0.111 0.159 0.115 0.042 -0.008 -0.113 -0.160 -0.153 -0.018 0.097 0.159 0.190 | .9971 .8738 .7262 .7495 .7254 .7130 .7263 .7141 .6940 .6804 .6515 .6385 .6403 .6775 .7093 .7262 .7348 | 1.151 0.799 0.312 0.362 0.254 0.197 0.215 0.158 0.080 0.028 -0.082 -0.131 -0.003 0.107 0.165 0.194 | .9993 .9023 .7678 .7819 .7520 .7362 .7413 .7254 .7040 .6896 .6594 .6454 .6456 .6810 .7115 .7273 .7353 | 1.151 0.885 0.420 0.449 0.324 0.262 0.256 0.190 0.055 -0.057 -0.110 -0.114 0.009 0.115 0.171 | .9993 .9260 .7977 .8058 .7713 .7526 .7343 .7121 .6970 .6660 .6514 .6504 .7137 .7291 |
| Run | 2 | 3 | 2 | 4 | 2 | 5 | 1 | 6 | 4 | 4 |
| M _∞ α° | 0.7 | | 0.7 3.7 | | 0.3 | | 0.7 | | 0.7 | |
| x/c | | | | | | | | | | |
| Upper | Ср | p/p _o | Сp | p/po | Сp | p/p _o | Сp | p/po | Cp | p/po |
| 1.000 0.928 0.848 0.800 0.720 0.649 0.599 0.549 0.498 0.450 0.350 0.299 0.250 0.101 0.075 0.051 0.031 0.020 0.015 0.011 0.007 0.004 0.0004 | 0.115 0.073 -0.019 -0.092 -0.231 -0.329 -0.386 -0.710 -1.135 -1.143 -1.116 -1.090 -1.077 -1.068 -1.084 -1.051 -1.057 -1.059 -1.068 -0.941 -0.879 -0.850 -0.550 -0.146 0.243 0.982 | .7140 .7040 .6769 .6568 .6185 .5915 .5757 .4866 .3694 .3672 .3746 .3816 .3816 .3854 .3877 .3833 .3925 .3910 .3904 .3878 .4228 .4399 .4480 .5307 .6420 .7491 | 0.050 0.004 -0.115 -0.195 -0.352 -0.505 -0.552 -0.713 -1.260 -1.282 -1.247 -1.224 -1.209 -1.202 -1.215 -1.184 -1.197 -1.191 -1.212 -1.124 -1.083 -1.029 -0.702 -0.298 0.095 0.899 | .6973 .6846 .6521 .6301 .5869 .5449 .5319 .4876 .3373 .3410 .3474 .3514 .3535 .3498 .3582 .3563 .3505 .3748 .3860 .4007 .6018 .7098 .9304 | -0.137 -0.248 -0.381 -0.445 -0.537 -0.607 -0.629 -0.662 -0.776 -1.027 -1.251 -1.283 -1.277 -1.291 -1.264 -1.278 -1.303 -1.220 -1.174 -1.117 -0.789 -0.390 0.003 0.831 | .6437 .6130 .5765 .5586 .5333 .5140 .5080 .4989 .4901 .4673 .3982 .3361 .3275 .3291 .3252 .3325 .3288 .3309 .3218 .3449 .3574 .3731 .4639 .5740 .6824 .9112 | 0.123 0.074 -0.025 -0.106 -0.271 -0.406 -0.495 -0.540 -0.707 -0.859 -0.877 -0.901 -0.879 -0.879 -0.879 -0.879 -0.874 -0.754 -0.616 -0.588 -0.339 0.048 0.420 1.064 | .7131 .6995 .6721 .6495 .6037 .5662 .5416 .5291 .4827 .4404 .4352 .4287 .4306 .4348 .4309 .4424 .4368 .4348 .4249 .4696 .5080 .5156 .5080 .5166 .5080 .5166 .5080 | 0.123 0.079 -0.019 -0.096 -0.250 -0.357 -0.398 -0.807 -0.949 -0.905 -0.912 -0.901 -0.878 -0.889 -0.844 -0.857 -0.861 -0.892 -0.733 -0.596 -0.295 0.059 0.434 1.071 | .7095 .6969 .6696 .6480 .6046 .5745 .5632 .4482 .4083 .4125 .4208 .4127 .4283 .4252 .4378 .4330 .4244 .4691 .5073 .5159 .5920 .6916 .7967 .9756 |
| Lower 0.000 0.001 0.003 0.005 0.011 0.019 0.050 0.100 0.147 0.199 0.299 0.400 0.499 | 1.150 0.967 0.575 0.574 0.434 0.358 0.322 0.241 0.156 0.098 -0.019 -0.076 -0.087 | .9993 .9487 .8407 .8405 .8018 .7810 .7710 .7487 .7253 .7093 .6769 .6612 | 1.141 1.066 0.760 0.743 0.569 0.481 0.408 0.309 0.219 0.154 0.028 -0.038 | .9971 .9764 .8925 .8876 .8398 .8156 .7956 .7436 .7259 .6913 .6732 | 1.117 1.111 0.869 0.825 0.649 0.555 0.462 0.351 0.255 0.186 0.051 -0.025 -0.059 | . 9899 . 9884 . 9215 . 9093 . 8609 . 8348 . 8091 . 7785 . 7521 . 7331 . 6957 . 6748 . 6654 | 1.152 0.794 0.340 0.358 0.251 0.194 0.214 0.158 0.080 0.028 -0.082 -0.133 | .9991 .8998 .7636 .7785 .7488 .7329 .7386 .7229 .7014 .6867 .6562 .6420 | 1.154 0.788 0.298 0.352 0.248 0.193 0.214 0.158 0.080 0.028 -0.086 -0.132 | .9990 .8961 .7586 .7738 .7444 .7291 .7349 .7192 .6973 .6828 .6507 .6378 |

| | | | Ta | ble 8.5 (co | ntd.) | | |
|--|---|--|---|--|--|---|---|
| c_p | p/po | $c_{\mathbf{p}}$ | p/po | Ср | p/po | c _p | p/po |
| 0.028 0.127 0.178 0.202 | .6899 .7172 .7313 .7379 | 0.042 0.129 0.166 0.173 | .6952 .7191 .7293 .7311 | 0.034 0.109 0.127 0.098 | .6911 .7118 .7166 .7088 | -0.003 0.108 0.166 0.196 | .6783 .7092 .7252 .7335 |
| 1 | 00 | 1 | 06 | 1 | 13 | | 118 |
| 0. | 798 | 0. | 801 | 0. | 850 | 0. | .851 |
| 2. | .01 | 5. | 01 | 2. | 01 | 4. | .47 |
| $c_{\mathbf{p}}$ | p/p ₀ | $C_{\mathbf{p}}$ | p/po | $c_{\mathbf{p}}$ | p/p _o | c_p | p/p _O |
| 0.095 0.030 -0.122 -0.214 -0.369 -0.533 -1.055 -1.011 -0.972 -0.906 -0.887 -0.848 -0.826 -0.829 -0.772 -0.781 -0.763 -0.790 -0.697 -0.477 -0.418 -0.194 0.144 0.144 0.507 1.090 | .6854 .6665 .6220 .5950 .5497 .5016 .3485 .3615 .3730 .3869 .3922 .3979 .4092 .4158 .4148 .4315 .4289 .4340 .4262 .4535 .5351 .6008 .6998 .8060 .9768 | -0.341 -0.474 -0.550 -0.580 -0.596 -0.592 -0.611 -0.644 -0.767 -1.102 -1.105 -1.101 -1.069 -1.077 -1.053 -1.077 -1.053 -1.079 -1.053 -1.079 -1.053 -1.079 -1.015 -1 | .5554 .5161 .4937 .4886 .4851 .4803 .4814 .4760 .4662 .4300 .3314 .3234 .3306 .3317 .3304 .3412 .3388 .3459 .3409 .3570 .3828 .4047 .4914 .5987 .7102 | -0.167 -0.274 -0.326 -0.347 -0.388 -0.784 -0.910 -0.861 -0.822 -0.780 -0.738 -0.716 -0.682 -0.651 -0.634 -0.562 -0.530 -0.508 -0.537 -0.452 -0.212 -0.137 0.061 0.376 0.704 | .5707 .5367 .5203 .5138 .5008 .3760 .3360 .3517 .3639 .3771 .3902 .3972 .4079 .4177 .4232 .4459 .4559 .4628 .4539 .4805 .5565 .5800 .6425 .7420 .8454 | -0.387 -0.474 -0.496 -0.506 -0.516 -0.534 -0.702 -0.990 -1.011 -0.973 -0.932 -0.903 -0.874 -0.859 -0.854 -0.808 -0.799 -0.775 -0.775 -0.773 -0.689 -0.560 -0.508 -0.242 0.090 0.433 1.054 | .5009 .4736 .4666 .4635 .4604 .4548 .4017 .3107 .3042 .3161 .3290 .3383 .3472 .3521 .3535 .3681 .3709 .3787 .3793 .4057 .4463 .4627 .5467 .5467 .598 |
| | | | | | | | |
| 1.164 0.747 0.240 0.309 0.213 0.173 0.205 0.157 0.084 0.018 -0.097 -0.152 -0.154 -0.007 0.114 0.167 0.186 | .9984 .8763 .7279 .7479 .7199 .7082 .7176 .6821 .6629 .6291 .6131 .6124 .6555 .6910 .7066 .7120 | 1.166 1.074 0.766 0.749 0.580 0.499 0.427 0.328 0.235 0.152 0.010 -0.079 -0.126 -0.016 0.067 0.057 -0.009 | .9987 .9716 .8810 .8760 .8263 .8024 .7811 .7521 .7247 .7002 .6587 .6324 .6185 .6509 .6754 .6725 | 1.156 0.575 -0.051 0.090 0.048 0.031 0.125 0.100 0.028 -0.040 -0.180 -0.267 -0.258 -0.065 0.070 0.104 0.069 | . 9881 .8046 .6072 .6516 .6383 .6329 .6628 .6549 .6320 .6105 .5664 .5389 .5417 .6028 .6452 .6560 | 1.192 0.966 0.547 0.565 0.433 0.372 0.347 0.269 0.180 0.098 -0.053 -0.159 -0.210 -0.062 0.041 0.037 -0.025 | .9993 .9279 .7957 .8013 .7597 .7405 .7326 .7081 .6800 .6541 .6064 .5729 .5569 .6037 .6361 .6347 .6153 |
| | 0.028 0.127 0.178 0.202 Cp 0.095 0.030 -0.122 -0.214 -0.369 -0.533 -1.055 -1.011 -0.924 -0.906 -0.887 -0.829 -0.772 -0.781 -0.763 -0.763 -0.763 -0.790 -0.697 -0.418 -0.194 0.164 0.1747 0.240 0.309 0.213 0.173 0.205 0.157 0.084 -0.097 -0.152 -0.154 -0.097 -0.152 -0.154 -0.007 0.0114 0.167 | 0.028 .6899 0.127 .7172 0.178 .7313 0.202 .7379 100 0.798 2.01 Cp p/Po 0.095 .6854 0.030 .6665 -0.122 .6220 -0.214 .5950 -0.369 .5497 -0.533 .5016 -1.055 .3485 -1.011 .3615 -0.972 .3730 -0.924 .3869 -0.906 .3922 -0.887 .3979 -0.848 .4092 -0.826 .4158 -0.829 .4148 -0.772 .4315 -0.781 .4289 -0.763 .4340 -0.790 .4262 -0.697 .4535 -0.477 .5178 -0.418 .5351 -0.194 .6008 0.144 .6998 0.507 .8060 1.090 .9768 1.164 .9984 0.747 .8763 0.240 .7279 0.309 .7479 0.213 .7199 0.173 .7082 0.205 .7176 0.157 .7036 0.084 .6629 -0.097 .6291 -0.152 .6131 -0.154 .6124 -0.007 .65555 0.014 .6910 0.167 .7066 | 0.028 | Cp P/Po Cp P/Po 0.028 .6899 0.042 .6952 0.127 .7172 0.129 .7191 0.178 .7313 0.166 .7293 0.202 .7379 0.173 .7311 100 106 0.798 0.801 2.01 5.01 5.01 Cp P/Po 0.095 .6854 -0.341 .5554 0.030 .6665 -0.474 .5161 -0.122 .6220 -0.550 .4937 -0.214 .5950 -0.568 .4886 -0.369 .5497 -0.580 .4851 -0.533 .5016 -0.596 .4883 -0.369 .5497 -0.580 .4814 -1.011 .3615 -0.611 .4760 -0.372 .3730 -0.644 .4662 -0.972 .3730 -0.644 .4662 -0.826 .4158 -1.105 | Cp p/p₀ Cp p/p₀ Cp 0.028 .6899 0.042 .6952 0.034 0.127 .7172 0.129 .7191 0.109 0.202 .7379 0.173 .7311 0.098 100 106 .7311 0.098 100 106 1 0.798 0.801 0.098 2.01 5.01 2 0.095 .6854 -0.341 .5554 -0.167 0.030 .6665 -0.474 .5161 -0.274 -0.122 .6220 -0.550 .4937 -0.326 -0.214 .5950 -0.568 .4886 -0.347 -0.369 .5497 -0.580 .4851 -0.388 -0.369 .5497 -0.580 .4851 -0.344 -0.369 .5497 -0.580 .4851 -0.344 -0.369 .5497 -0.580 .4851 -0.381 -1.051 .3365 -0.596 .4803 | 0.028 | Cp p/po Cp p/po Cp p/po Cp 0.028 .6899 0.042 .6952 0.034 .6911 -0.003 0.178 .7172 0.129 .7191 0.109 .7118 0.106 0.178 .7313 0.166 .7293 0.127 .7166 0.166 0.202 .7379 0.173 .7311 0.098 .7088 0.196 100 106 113 0.798 0.801 0.850 0. 2.01 5.01 2.01 4. 0.850 0. 0. 2.01 5.01 2.01 4. 0.6854 -0.341 .5554 -0.167 .5707 -0.387 0.030 .6665 -0.474 .5161 -0.274 .5367 -0.474 .0.122 .6220 -0.550 .4937 -0.326 .5203 -0.496 .0.162 .0.124 .5560 .0.347 .5138 .508 -0.5134 .0.506 .4803 -0.784 |

p/p₀

.6747 .7064 .7230 .7317

 c_p

0.000 0.112 0.171 0.203

Table 8.6

SURFACE PRESSURE DISTRIBUTION - POLYTECHNIC OF TURIN (P.T.)

| Run | F | 233 | Р3 | 16 | PS | 16 | PS | 17 | P3 | 37 |
|---|---|--|--|---|--|--|--|--|--|---|
| ${\rm M}_{\infty}$ | | 751 | 0.7 | | 0.7 | | 0.7 | | 0.7 | |
| α° | 1. | 12 | 2.2 | 25 | 2.8 | 13 | 3.4 | 8 | 4.6 | 51 |
| x/c Upper | $c_{\mathbf{p}}$ | p/po | Cp | p/p ₀ | Ср | p/po | Cp | p/po | Ср | p/po |
| 1.000 0.928 0.848 0.800 0.720 0.649 0.599 0.549 0.498 0.450 0.299 0.250 0.150 0.101 0.075 0.031 0.020 0.015 0.011 | 0.143 0.083 0.0060 -0.060 -0.334 -0.476 -0.507 -0.537 -0.623 -0.623 -0.633 -0.650 -0.657 -0.657 -0.645 -0.633 -0.652 -0.550 -0.430 -0.337 -0.143 0.193 0.193 0.193 | .7268 .7105 .6880 .6717 .5974 .5587 .5503 .5423 .5339 .5269 .5162 .5115 .5092 .5162 .5116 .5162 .5110 .5386 .5713 .5965 .6493 .7403 .8422 .9860 | 0.136 0.077 -0.013 -0.082 -0.215 -0.366 -0.529 -0.558 -0.696 -0.734 -0.761 -0.802 -0.852 -0.879 -0.877 -0.852 -0.849 -0.723 -0.723 -0.723 -0.700 -0.7 | .7149 .6984 .6731 .6538 .6167 .5744 .5289 .5209 .4824 .4716 .4641 .4528 .4387 .4317 .4387 .4396 .4373 .4749 .5092 .5345 .5909 .6886 .7994 | 0.107 0.051 -0.053 -0.103 -0.247 -0.359 -0.428 -0.461 -0.608 -0.833 -0.931 - - - - -0.963 -1.005 -1.020 -1.022 -1.024 -0.903 -0.800 -0.717 -0.505 -0.149 0.249 0.959 | .7120 .6966 .6729 .6541 .6145 .5835 .5647 .5555 .5483 .5150 .4532 .4261 .4174 .4058 .4015 .4010 .4005 .4338 .4623 .4850 .5435 .6415 .7511 .9467 | 0.107 0.049 -0.035 -0.102 -0.237 -0.345 -0.402 -0.430 -0.696 -0.952 -1.026 | .7120 .6961 .6729 .6545 .6174 .5874 .5720 .5642 .5502 .4908 .4203 .4000 - .3928 .3855 .3822 .3822 .3822 .3841 .4189 .4425 .4676 .5251 .6227 .7342 .9395 | 0.090 0.043 -0.036 -0.093 -0.205 -0.296 -0.357 -0.462 -0.744 -1.026 -1.083 -1.100 -1.133 -1.200 -1.240 -1.235 -1.240 -1.235 -1.240 -1.235 -1.240 -1.356 -0.963 -0.730 -0.362 0.086 0.878 | .7103 .6976 .6760 .6605 .6299 .6050 .5885 .5598 .4827 .4056 .3901 .3854 .3764 .3764 .3487 .3487 .3487 .3487 .3487 .3506 .3774 .3976 .4230 .4865 .5871 .7094 .9257 |
| Lower | | | | | | | | | | |
| 0.000 0.001 0.003 0.005 0.011 0.019 0.050 0.100 0.147 0.199 0.299 0.400 0.499 0.599 0.729 0.868 0.948 | 1.080 0.521 0.017 0.045 0.026 0.007 0.064 0.028 -0.036 -0.091 -0.188 -0.227 -0.184 -0.120 0.028 0.153 0.157 | .9813 .8295 .6927 .7002 .6950 .6899 .7053 .6955 .6782 .6633 .6371 .6264 .6381 .6554 .6955 .7296 | 1.112 0.739 0.313 0.292 0.224 0.176 0.156 0.097 0.035 -0.145 -0.198 -0.168 -0.097 -0.005 0.158 | .9878 .8835 .7642 .7586 .7393 .7261 .7205 .7041 .6853 .6670 .6364 .6214 .6299 .6496 .6754 .7210 | 1.071 0.861 0.505 0.466 0.354 0.288 0.233 0.160 0.080 0.014 -0.088 -0.116 -0.037 0.075 0.119 | .9776 .9197 .8216 .8110 .7801 .7618 .7468 .7265 .7048 .6864 .6584 .6507 .6724 .7033 .7154 .7168 | 1.080 0.926 0.600 0.545 0.417 0.351 0.274 0.196 0.110 0.040 -0.065 -0.105 -0.030 0.079 0.123 0.126 | . 9800 . 9375 . 8477 . 8327 . 7975 . 7791 . 7579 . 7366 . 7130 . 6937 . 6647 6536 . 6743 . 7043 . 7164 . 7173 | 1.095 1.033 0.760 0.673 0.558 0.462 0.358 0.260 0.167 0.088 -0.038 -0.115 -0.115 -0.041 0.021 0.152 | . 9850 . 9680 . 8933 . 8698 . 8382 . 8119 . 7569 . 7315 . 7099 . 6755 . 6544 . 6746 . 6915 . 7273 . 7221 |
| Run | P | 78 | P | 39 | P | 99 | P | 40 | P | 108 |
| M _∞ α• | | 765 61 | | 802 30 | | 795 00 | | 793 90 | | 797 90 |
| x/c Upper | Cp | p/po | Cp | p/po | Cp | p/po | . cp | p/p _o | Cp | p/p _o |
| 1.000 0.928 0.848 0.800 0.720 0.649 0.599 0.549 0.498 0.450 0.400 0.350 0.299 0.250 0.200 | 0.065 0.016 -0.056 -0.109 -0.220 -0.330 -0.422 -0.554 -0.849 -1.141 -1.213 -1.255 | .6968 .6829 .6630 .6482 .6175 .5867 .5612 .5243 .4424 .3610 .3410 .3293 | 0.151 0.103 0.024 -0.035 -0.337 -0.625 -0.640 -0.654 -0.673 -0.710 -0.757 -0.757 -0.732 -0.698 -0.641 | .6992 .6851 .6616 .6443 .5552 .4703 .4660 .4618 .4562 .4454 .4323 .4285 .4313 .4388 .4487 .4656 | 0.126 0.074 -0.010 -0.070 -0.201 -0.352 -0.571 -0.835 -0.922 -0.918 -0.900 -0.886 - | .6961 .6808 .6565 .6388 .6006 .5567 .4927 .4159 .3906 .3915 .3968 .4011 | 0.103 0.061 -0.021 -0.078 -0.229 -0.542 -0.793 -0.825 -0.828 -0.844 -0.877 -0.933 -0.945 -0.909 -0.875 | .6907 .6785 .6546 .6381 .5940 .5030 .4302 .4208 .4199 .4152 .4058 .3894 .3861 .3917 .3964 | 0.046 -0.007 -0.098 -0.162 -0.292 -0.437 -0.573 -0.780 -0.969 -1.010 -1.051 -1.087 | .6715 .6562 .6295 .6109 .5727 .5302 .4906 .4299 .3746 .3626 .3507 .3402 |

Table 8.6 (contd.)

| $c_{\mathbf{p}}$ | p/p _o | c_p | p/po | c_{p} | p/p _o | $c_{\mathbf{p}}$ | p/p _o | $c_{\mathbf{p}}$ | p/po |
|--|--|--|--|--|--|---|--|--|---|
| -1.210 -1.204 -1.198 -1.095 -1.025 -0.927 -0.701 -0.330 0.089 0.889 | .3419 .3436 .3454 .3740 .3935 .4208 .4836 .5867 .7033 | -0.600 -0.565 -0.562 -0.431 -0.299 -0.204 -0.013 0.307 0.655 | .4778 .4881 .4890 .5275 .5664 .5946 .6509 .7451 .8479 | -0.733 -0.725 -0.725 -0.576 -0.453 -0.367 -0.170 0.157 0.517 | .4455 .4479 .4479 .4913 .5271 .5524 .6097 .7052 .8102 | -0.861 -0.849 -0.838 -0.707 -0.583 -0.496 -0.295 0.045 0.439 | .4105 .4138 .4171 .4551 .4912 .5166 .5748 .6738 .7883 | -0.992 -0.979 -0.960 -0.811 -0.723 -0.640 -0.429 -0.095 0.291 | .3679 .3717 .3774 .4209 .4466 .4710 .5326 .6304 .7431 |
| 0.003 | . 5200 | 1.100 | .30// | 7.000 | .37.00 | 1.000 | .5700 | 0.505 | .5105 |
| 1.112 1.051 0.776 0.702 0.578 0.489 0.382 0.282 0.188 0.109 -0.014 | .9880 .9711 .8944 .8740 .8393 .8146 .7847 .7570 .7310 .7089 | 1.088 0.471 -0.059 -0.016 -0.019 -0.029 0.029 0.016 -0.049 -0.110 -0.217 -0.262 | .9755 .7935 .6372 .6499 .6490 .6462 .6630 .6593 .6401 .6222 .5903 | 1.108 0.674 0.214 0.229 0.164 0.126 0.129 0.088 0.013 -0.044 | .9825 .8560 .7219 .7262 .7071 .6961 .6971 .6851 .6632 .6465 | 1.124 0.793 0.389 0.357 0.283 0.229 0.197 0.142 0.060 -0.016 -0.136 | .9874 .8911 .7738 .7644 .7428 .7273 .7179 .7020 .6780 .6560 .6212 | 1.100 0.919 0.583 0.542 0.421 0.354 0.286 0.206 0.122 0.049 | .9798 .9269 .8285 .8166 .7813 .7617 .7416 .7183 .6939 .6724 .6362 |
| -0.072 -0.014 0.090 0.121 0.111 | .6586 .6747 .7037 .7124 .7093 | -0.210 -0.153 0.073 0.161 0.169 | .5927 .6096 .6762 .7020 .7043 | -0.156 -0.061 0.069 0.128 0.141 | .6140 .6417 .6794 .6966 .7004 | -0.178 -0.102 -0.024 0.152 0.139 | .6090 .6311 .6536 .7048 .7010 | -0.127 -0.051 0.065 0.104 0.093 | .6209 .6433 .6772 .6887 .6853 |
| P | 41 | P | 81 | P | 100 | | P82 | F | 13 |
| | | | | | | | | | 848 |
| | 43 | | 43 | | .80 | | .77 | | .77 |
| | p/p _o | * | p/p _o | | p/p _o | | p/p _o | | p/p _o |
| -0.129 -0.183 -0.244 -0.276 -0.345 -0.424 -0.498 -0.601 -0.957 -1.001 -1.004 -1.023 | .6192 .6031 .5852 .5758 .5556 .5325 .5108 .4806 .4279 .3760 .3633 .3624 .3567 | -0.169 -0.238 -0.298 -0.328 -0.382 -0.441 -0.485 -0.567 -0.696 -0.915 -1.067 | .6063 .5860 .5683 .5597 .5437 .5264 .5135 .4893 .4513 .3870 .3425 .3412 | 0.098 0.030 -0.085 -0.159 -0.316 -0.773 -0.903 -0.858 -0.802 -0.760 -0.716 -0.683 | .6552 .6338 .5977 .5744 .5249 .3808 .3399 .3542 .3718 .3851 .3989 .4094 | 0.000 -0.082 -0.165 -0.206 -0.263 -0.406 -0.826 -0.904 -0.863 -0.816 -0.786 | .6229 .5971 .5708 .5579 .5398 .4946 .3620 .3374 .3504 .3654 .3749 .3814 | -0.022 -0.093 -0.190 -0.264 -0.622 -0.637 -0.634 -0.638 -0.661 -0.715 -0.727 -0.844 -0.662 | .6178 .5954 .5649 .5416 .4243 .4252 .4239 .4167 .3997 .3959 .3591 |
| -1.134 -1.118 -1.105 -1.092 | .3242 .3289 .3327 .3365 | -1.143 -1.125 -1.117 -1.102 | .3200 .3252 .3278 .3321 | -0.530 -0.498 -0.443 -0.399 | .4574 .4674 .4850 .4988 | -0.629 -0.580 -0.529 -0.499 | .4244 .4399 .4559 .4653 | -0.627 -0.561 -0.510 -0.476 | .4273 .4480 .4641 .4747 |
| -1.071 -0.964 -0.883 -0.793 -0.573 -0.222 0.194 0.941 | .3426 .3742 .3977 .4241 .4887 .5918 .7139 | -1.087 -0.981 -0.908 -0.817 -0.598 -0.247 0.154 0.914 | .3364 .3675 .3891 .4159 .4802 .5834 .7013 | -0.370 -0.239 -0.105 -0.014 0.168 0.453 0.755 | .5078 .5492 .5910 .6200 .6771 .7670 .8621 .9834 | -0.483 -0.348 -0.210 -0.115 0.070 0.380 0.709 1.166 | .4705 .5131 .5566 .5867 .6449 .7430 .8468 | -0.458 0.323 0.187 0.092 0.094 0.404 0.738 1.174 | .4806 .7262 .6835 .6534 .6543 .7516 .8567 |
| 1 100 | 0076 | | 0046 | 1 054 | 0550 | 1 110 | 0760 | 1 100 | 0770 |
| 1.128 1.036 0.758 0.679 0.559 0.474 0.373 0.275 0.180 0.093 | . 9876 . 9608 . 8792 . 8562 . 8208 . 7959 . 7662 . 7374 . 7096 . 6842 . 6404 | 1.118 1.046 0.771 0.702 0.577 0.488 0.383 0.286 0.191 0.106 | .9846 .9634 .8827 .8624 .8257 .7993 .7687 .7402 .7121 .6871 | 1.054 0.341 -0.258 -0.174 -0.148 -0.134 -0.037 -0.076 -0.137 -0.234 | .9563 .7318 .5430 .5696 .5777 .5820 .6139 .6191 .6005 .5810 | 0.514 -0.031 0.023 0.022 0.016 0.063 0.053 -0.023 -0.089 -0.194 | .9760 .7852 .6130 .6302 .6298 .6281 .6427 .6397 .6156 .5949 | 0.509 -0.078 -0.023 -0.013 -0.020 0.040 0.032 -0.035 -0.113 -0.250 | .9778 .7847 .6000 .6174 .6204 .6183 .6373 .6348 .6136 .5890 |
| | -1.210 -1.204 -1.198 -1.095 -1.025 -0.927 -0.701 -0.330 0.089 0.889 1.112 1.051 0.776 0.702 0.578 0.489 0.382 0.282 0.188 0.109 -0.014 -0.072 -0.014 0.111 0.5 Cp -0.129 -0.183 -0.244 -0.498 -0.601 -0.781 -0.957 -1.001 -1.004 -1.108 -1.108 -1.108 -1.1092 -1.134 -1.118 -1.1092 -1.134 -1.118 -1.1092 -1.071 -0.964 -0.883 -0.573 -0.222 0.194 0.941 1.128 1.0368 0.7679 0.474 0.373 0.275 0.093 | -1.210 | -1.210 .3419 | -1.210 | -1.210 | -1.210 | -1.210 | -1.210 | -1_210 3419 -0_600 4778 -0_733 4455 -0_961 4105 -0_979 |

Table 8.6 (contd.)

p/po

.5154 .5246 .5399 .6360 .6581 .6458

-0.347 -0.318 -0.269 0.036 0.106 0.067

| x/c Upper | c _p | p/po | Cp | p/po | c _p | p/po | $C_{\mathbf{p}}$ | p/p _o |
|---|---|---|--|---|--|--|---|----------------------------------|
| 0.400 0.499 0.599 0.729 0.868 0.948 | -0.154 -0.167 -0.090 -0.024 0.074 0.016 | .6116 .6079 .6305 .6498 .6785 | -0.110 -0.056 0.038 0.038 -0.028 | .6236 .6396 .6672 .6672 .6478 | -0.396 -0.082 0.056 0.115 0.121 | .4997 .5986 .6419 .6605 | -0.466 -0.097 0.049 0.089 0.068 | .4757 .5923 .6384 .6509 |
| Dun | D | 109 | D | 102 | | 85 | | |
| Run | | 842 | | 841 | | 855 | | |
| M _∞ | | | | | | | | |
| α° | ۷. | 00 | 3. | 20 | 4. | 18 | | |
| x/c Upper | Cp | p/p _o | $c_{\mathbf{p}}$ | p/p _o | Cp | p/po | | |
| 1.000 0.928 0.848 0.800 0.720 0.649 0.599 0.450 0.498 0.450 0.200 0.150 0.101 0.075 0.051 0.031 0.020 0.015 0.015 | 0.054 -0.017 -0.136 -0.219 -0.392 -0.656 -0.863 -0.935 -0.922 -0.890 -0.851 -0.8220.714 -0.658 -0.620 -0.597 -0.581 -0.422 -0.294 -0.207 -0.023 0.282 0.613 | .6460 .6239 .5867 .5608 .5067 .4244 .3599 .3374 .3416 .3515 .3637 .3726 - .4065 .4239 .4357 .4479 .4973 .5373 .5373 .5620 | -0.019 -0.079 -0.176 -0.246 -0.398 -0.576 -0.745 -0.866 -0.907 -0.944 -0.939 -0.9170.814 -0.788 -0.761 -0.742 -0.715 -0.573 -0.461 -0.375 -0.188 -0.129 -0.481 | .6229 .6043 .5739 .5524 .5051 .4499 .3971 .3595 .3469 .3354 .3368 .3437 .3760 .3841 .3925 .3984 .4070 .4510 .4859 .5129 .5709 .6698 .7795 | -0.167 -0.233 -0.287 -0.318 -0.375 -0.438 -0.505 -0.965 -0.965 -0.961 -0.942 | .5671 .5461 .5290 .5192 .4811 .4597 .3583 .3168 .3138 .3151 .3211 - .3514 .3621 .3707 .3775 .3865 .4233 .4576 .4849 .5465 .6501 | | |
| 0.0004 Lower | 1.112 | .9757 | 1.068 | .9621 | 1.071 | .9603 | | |
| 0.000 0.001 0.003 0.005 0.011 0.019 0.050 0.100 0.147 0.199 0.299 0.400 0.499 0.599 0.729 0.868 | 1.101 0.611 0.136 0.161 0.116 0.094 0.115 0.083 0.014 -0.053 -0.166 - | .9724 .8196 .6714 .6794 .6653 .6582 .6649 .6333 .6126 .5773 - .5406 .6050 .6474 | 1.115 0.784 0.382 0.366 0.280 0.236 0.208 0.153 0.070 -0.002 -0.123 -0.231 -0.082 0.045 0.077 | .9766 .8735 .7481 .7433 .7165 .7029 .6940 .6768 .6510 .6286 .5908 | 1.148 0.884 0.504 0.473 0.389 0.332 0.280 0.209 0.120 0.039 -0.090 | .9847 .9008 .7802 .7703 .7438 .7254 .7091 .6865 .6582 .6325 .5915 | | |
| 0.948 | 0.100 | .6601 | 0.054 | .6460 | -0.031 | .6103 | | |

Table 8.7

PRESSURE DISTRIBUTION ABOVE AND BELOW THE MODEL AT A DISTANCE OF 132 mm FROM THE CHORD Polytechnic of Turin

| Run | 1 | 233 | | P36 | | P96 | | P97 | | P37 |
|---|---|--|--|--|---|--|--|--|---|---|
| M_{∞} | 0. | .751 | 0 | .768 | 0 | .759 | 0 | .759 | 0 | .754 |
| α° | 1. | .12 | 2 | .25 | 2 | .83 | 3 | .48 | 4 | .61 |
| Upper Side | c_{p} | p/po | c_p | p/po | Ср | p/p _o | c_p | p/po | $c_{\mathbf{p}}$ | p/p _o |
| -0.63 -0.47 -0.32 -0.16 0.00 0.16 0.32 0.47 0.63 0.79 0.94 1.26 1.57 Lower Side -0.63 -0.47 -0.32 -0.16 0.00 0.16 0.32 0.47 | -0.029 -0.031 -0.035 -0.048 -0.073 -0.111 -0.114 -0.110 -0.096 -0.076 -0.046 -0.030 -0.004 -0.001 0.005 0.008 0.008 0.008 0.006 0.002 0.001 0.006 0.009 | .6801 .6797 .6786 .6749 .6683 .6627 .6578 .6571 .6582 .6620 .6675 .6756 .6799 .6871 .6876 .6393 .6901 .6902 .6896 .6886 .6886 .6888 | -0.041 -0.047 -0.064 -0.079 -0.111 -0.150 -0.174 -0.170 -0.139 -0.110 -0.083 -0.048 -0.037 | .6655 .6636 .6589 .6546 .6457 .6349 .6283 .6380 .6462 .6537 .6633 .6664 .6780 .6791 .6798 .6801 .6820 .6810 .6813 .6815 .6822 .6845 | -0.041 -0.052 -0.069 -0.094 -0.133 -0.169 -0.182 -0.168 -0.138 -0.107 -0.083 -0.040 -0.039 -0.017 0.022 0.027 0.029 0.025 0.025 0.025 0.027 | .6712 .6683 .6634 .6567 .6460 .6359 .6325 .6364 .6446 .6530 .6596 .6716 .6719 .6872 .6885 .6899 .6904 .6894 .6894 .6894 .6899 .6904 | -0.043 -0.050 -0.064 -0.090 -0.134 -0.182 -0.208 -0.203 -0.164 -0.131 -0.096 -0.047 0.017 0.031 0.025 0.032 0.036 0.037 0.034 0.034 0.032 0.032 | .6707 .6687 .6649 .6576 .6456 .6325 .6253 .6267 .6374 .6465 .6562 .6654 .6697 | -0.050 -0.056 -0.070 -0.104 -0.147 -0.192 -0.230 -0.225 -0.190 -0.158 -0.118 -0.085 -0.065 0.012 0.015 0.022 0.015 0.022 0.031 0.038 0.041 0.038 0.044 0.033 | .6723 .6706 .6668 .6574 .6456 .6334 .6245 .6339 .6428 .6536 .6626 .6682 |
| 0.94 1.26 1.57 | 0.022 0.025 0.027 | .6940 .6949 .6954 | 0.029 0.031 0.029 | .6850 .6855 .6850 | 0.032 0.030 0.029 | .6913 .6909 .6904 | 0.034 0.037 0.036 | .6918 .6928 .6923 | 0.035 0.036 0.034 | .6954 .6956 .6951 |
| | | | | | | | | | | |
| Run | | 239 | | P99 | | P40 | , , | 108 | | P41 |
| M _∞ | | 939 .802 | | P99 .795 | | P40 .793 | | 108 .797 | | P41 .799 |
| M _∞ α° | 0 | | 0 | | 0 | | 0 | | 0 | |
| M _∞ | 0 | .802 .30 p/p _o | 0 | .795 | 0 | .793 .90 p/p ₀ | 0 | .797 .90 p/p ₀ | 0 5 C _p | .799 .43 p/p ₀ |
| M _∞ α° ×/c | 1. | .802 | 0 2 | .795 .00 | 0 2 | .793 .90 | 0 | .797 .90 | 0 5 | .799 .43 |
| M _∞ α° x/c Upper Side -0.63 -0.47 -0.32 -0.16 0.00 0.16 0.32 0.47 0.63 0.79 0.94 1.26 | C _p -0.025 -0.026 -0.029 -0.047 -0.106 -0.133 -0.139 -0.136 -0.107 -0.079 | P/Po .6471 .6469 .6459 .6408 .6319 .6234 .6154 .6136 .6145 .6229 .6314 .6431 | Cp -0.037 -0.040 -0.055 -0.083 -0.106 -0.147 -0.181 -0.197 -0.176 -0.122 -0.081 | .795 .00 p/po .6486 .6476 .6433 .6352 .6285 .6166 .6066 .6018 .6080 .6237 .6357 | Cp -0.033 -0.038 -0.056 -0.078 -0.119 -0.216 -0.217 -0.175 -0.132 -0.088 -0.051 | .793 .90 P/Po .6510 .6496 .6445 .6379 .6262 .6088 .5980 .5975 .6097 .6224 .6351 .6459 | 0 3 Cp -0.035 -0.039 -0.052 -0.133 -0.197 -0.262 -0.293 -0.153 -0.106 -0.065 | .797 .90 P/Po .6478 .6466 .6430 .6345 .6192 .6006 .5815 .5724 .5901 .6135 .6271 | C _p -0.039 -0.040 -0.051 -0.076 -0.125 -0.195 -0.269 -0.312 -0.258 -0.171 -0.136 -0.089 | .799 .43 P/Po .6453 .6451 .6420 .6345 .6203 .5996 .5779 .5652 .5812 .6067 .6170 .6307 |

Table 8.7 (contd.)

| Run | F | 100 | | P109 | P. | 102 |
|--|--|--|--|--|--|---|
| M _∞ | 0 | .849 | , o | .842 | 0. | 841 |
| ao | 0 | .80 | 2 | .00 | 3. | 20 |
| x/c Upper Side | c_p | p/p _o | c _p | p/po | c_p | p/po |
| -0.63 -0.47 -0.32 -0.16 0.00 0.16 0.32 0.47 0.63 0.79 0.94 1.26 1.57 | -0.008 -0.008 -0.014 -0.031 -0.066 -0.118 -0.170 -0.208 -0.212 -0.129 -0.050 -0.016 -0.008 | .6218 .6218 .6199 .6146 .6037 .5870 .5709 .5576 .5837 .6084 .6194 | -0.018 -0.018 -0.027 -0.049 -0.092 -0.152 -0.259 -0.242 -0.163 -0.069 -0.029 | .6235 .6235 .6207 .6136 .6005 .5817 .5605 .5483 .5784 .6075 .6200 .6228 | -0.026 -0.026 -0.042 -0.055 -0.099 -0.170 -0.251 -0.326 -0.340 -0.197 -0.082 -0.035 -0.028 | .6212 .6212 .6162 .6162 .5983 .5763 .5510 .5276 .5233 .5677 .6035 .6183 .6205 |
| Lower Side | | | | | | |
| -0.63 -0.47 -0.32 -0.16 0.00 0.16 0.32 0.47 0.63 0.79 0.94 1.26 | 0.018 0.020 0.018 0.012 0.003 -0.011 -0.015 -0.011 0.002 0.020 0.027 0.030 0.030 | .6300 .6305 .6300 .6281 .6253 .6210 .6196 .6210 .6248 .6305 .6329 .6338 | 0.018 0.025 0.030 0.024 0.018 0.008 0.003 0.006 0.017 0.027 0.032 0.035 | .6347 .6370 .6384 .6366 .6347 .6314 .6300 .6309 .6342 .6375 .6389 .6399 | 0.023 0.025 0.041 0.035 0.028 0.015 0.002 0.000 0.012 0.020 0.032 0.037 0.038 | .6364 .6369 .6419 .6402 .6378 .6340 .6300 .6292 .6331 .6355 .6393 .6407 |

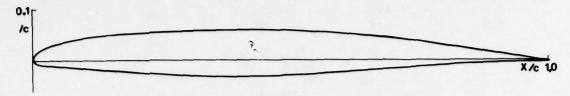
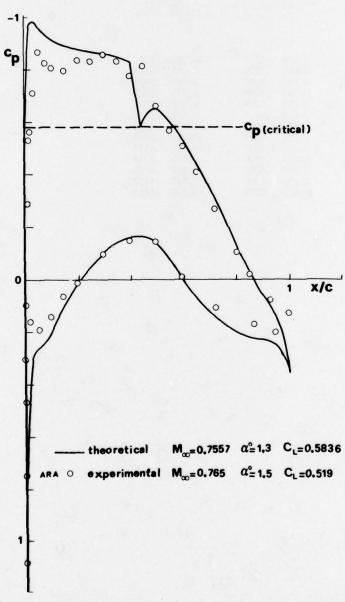


Fig. 8.1. MBB-A3 Airfoil



Pig.8.2. MBB-A3 Airfoil - Pressure distribution at design point (reprinted from ref.[1])

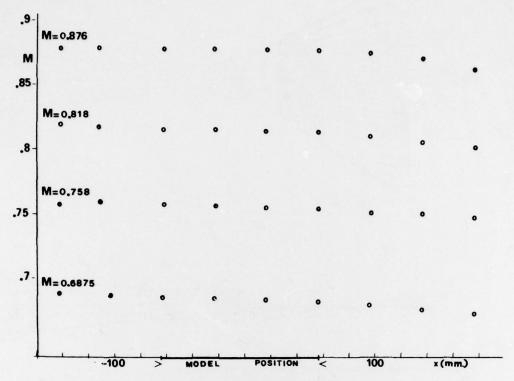


Fig.8.3a. Turin Polytechnic Wind Tunnel - Longitudinal Mach number distributions in empty test section.

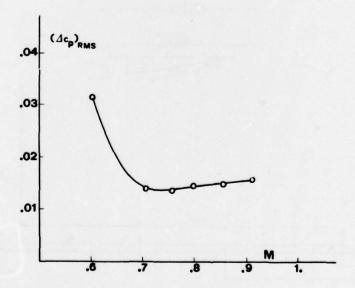
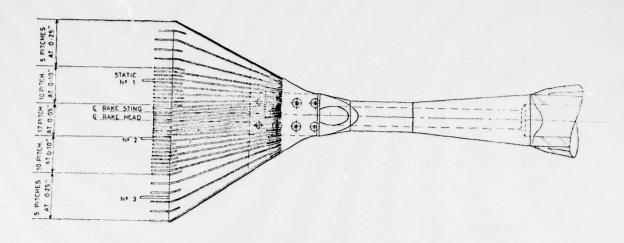


Fig.8.3b. Turin Polytechnic Wind Tunnel - Variation of tunnel pressure fluctuations with Mach number.



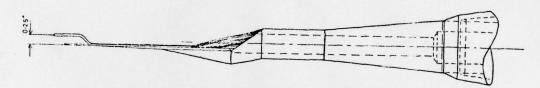


Fig. 8.4. ARA Bedford Wind Tunnel - Wake Rake

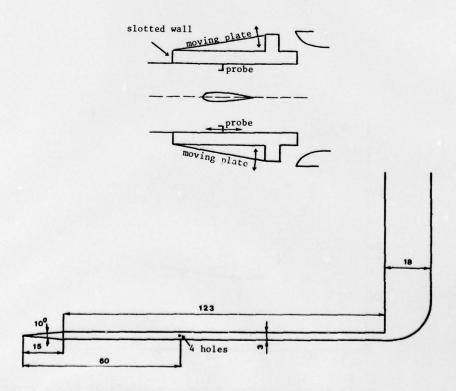


Fig.8.5. Turin Polytechnic Wind Tunnel - Static pressure probe for boundary conditions measurements and sketch of installation (all dimensions in mm).

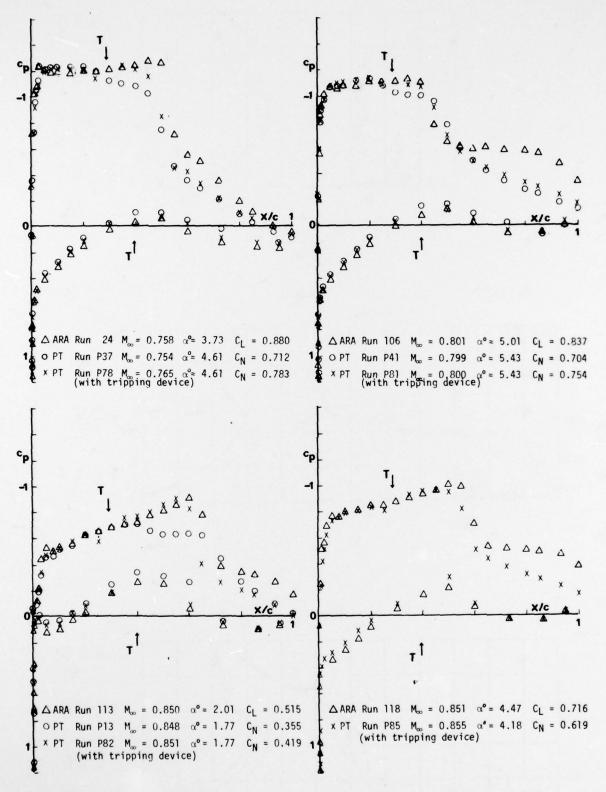


Fig.8.6. MBB-A3 Airfoil - Comparison between results obtained at the A.R.A Bedford wind tunnel and at the Turin Polytechnic wind tunnel.

T tripping device.

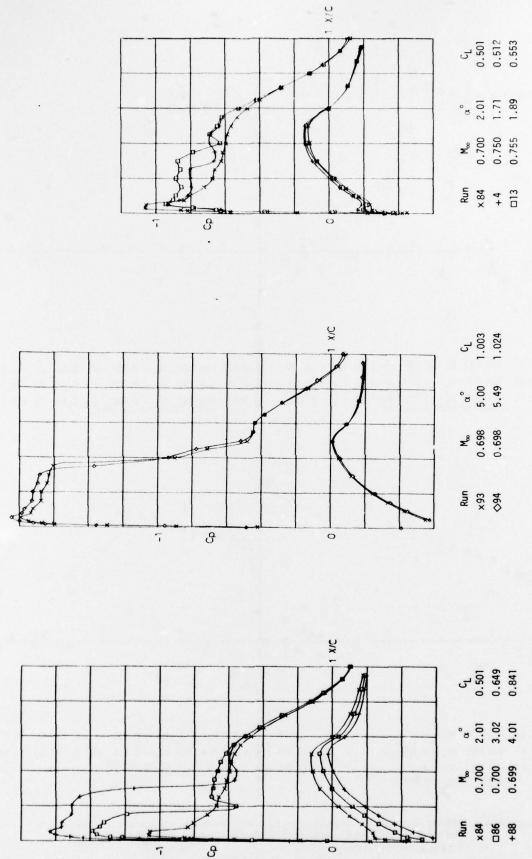
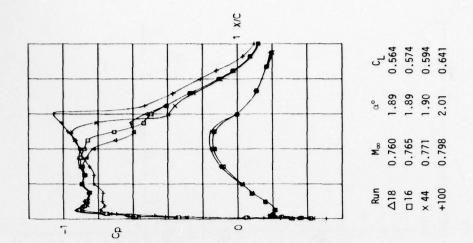
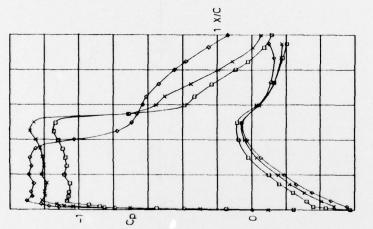


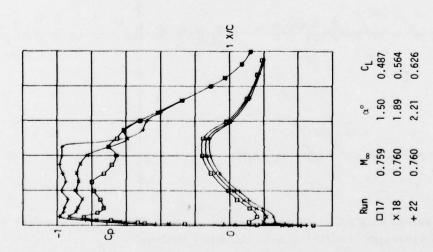
Fig.8.7. MBB-A3 Airfoil - Results obtained at the A.R.A. Bedford wind tunnel





| لی | 0.734 | 0.880 | 0.920 |
|------------|-------|-------|-------|
| °ర | 2.75 | 3.73 | 4.74 |
| ∑ 8 | 0.760 | 0.758 | 0.761 |
| Run | 0.23 | × 24 | \$25 |
| | | | |

Fig. 8.7. (contd.)



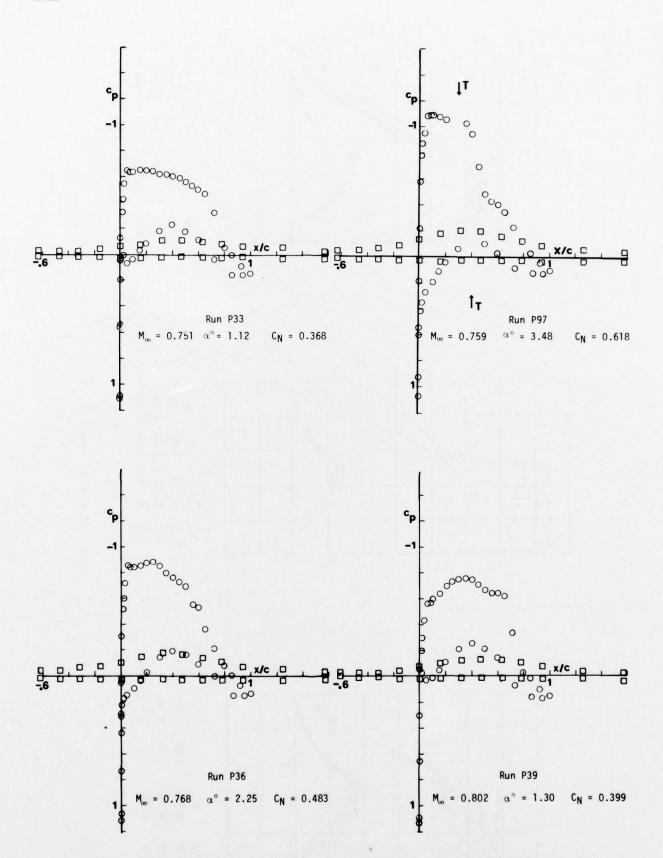


Fig.8.8. MBB-A3 Airfoil - Results obtained at the Turin Polytechnic wind tunnel Opressure coefficients on the model surface

□pressure coefficients at a distance of 132 mm from the model chord above and below the model

Ttripping device

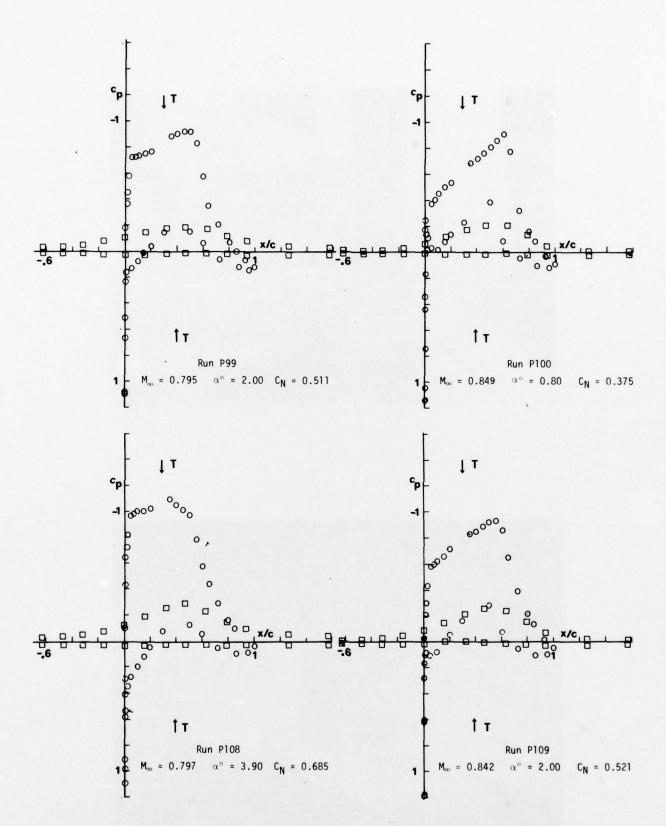
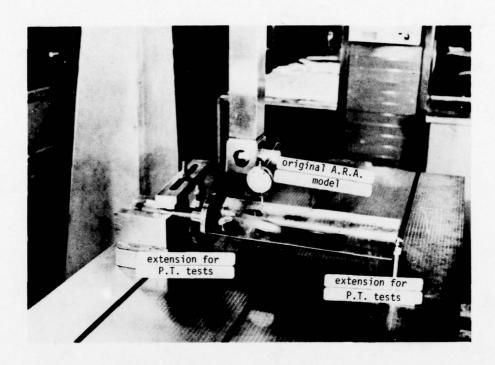
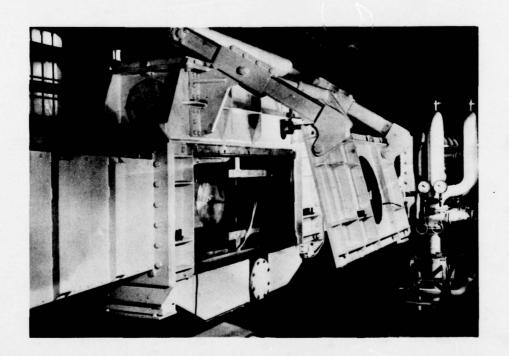


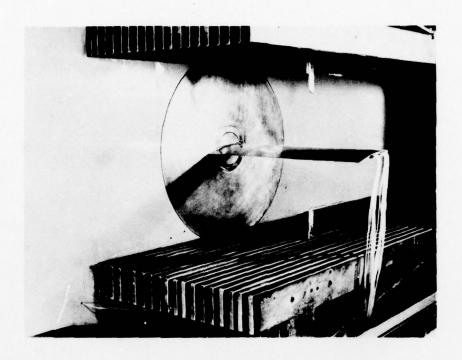
Fig.8.8. (contd.)

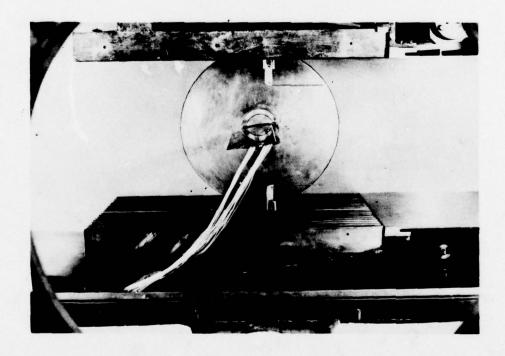




Picture 1 - Model and test section







The same of the sa

Picture 1 (contd.)

9. EXPERIMENTAL INVESTIGATION OF A 10 PERCENT THICK NASA SUPERCRITICAL AIRFOIL SECTION

by

Charles D. Harris NASA Langley Research Center, Hampton, Va. 23665

9.1 INTRODUCTION

This contribution contains representative samples of data obtained for a supercritical airfoil section tested in the Langley 8-foot transonic pressure tunnel. Airfoils with various trailing edge geometries and two maximum thicknesses were tested in the investigation, but only data for a 10 percent maximum thickness airfoil with a 1.0 percent thick trailing edge with cavity are presented in this compilation. Drag, normal-force, pitching-moment and pressure-distribution data are included for small angles of attack and Mach numbers from 0.60 to 0.81.

9.2 DATA SET

| 1. | General | Description |
|----|---------|-------------|
| | | |

Airfoil designation Supercritical airfoil 9a. 1.2 Type of airfoil Supercritical. 1.2.1 Airfoil geometry 0.0212 c Nose radius 0.01 c Base thickness

1.2.2 Design condition $C_n = 0.7 \quad M = 0.79$ Flat top. Rear loaded.

Maximum thickness

Design pressure distribution 1.3 Additional remarks Airfoil tested with various trailing

edge cavities. 1.4 References on airfoil NASA TM X-2336

0.10 c

.635 cm

"Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris

Model geometry

2.5

2.1 Chord length 0.635 m (25.0 in.) 2.2 Span 2.18 m (85.8 in.) 2.3 See Table I and figure 9.1. Actual model co-ordinates and accuracy

Maximum thickness .0635 m

Base thickness 2.6 Additional remarks

2.7 References on model NASA TM X-2336

"Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section, " by Charles D. Harris

3.

4.

| Wind | tunnel | | |
|-------|----------|-----------------------------------|---|
| 3.1 | Designa | ation | 8-Foot Transonic Pressure Tunnel |
| 3.2 | Type of | f tunnel | Continuous flow, pressure tunnel |
| | 3.2.1 | Stagnation pressure | Can be varied from approx. 15 to 68 k N/m ² |
| | 3.2.2 | Stagnation temperature | 322 K (120 F) |
| | 3.2.3 | Humidity/dew point | Air dried sufficiently to avoid condensation. |
| 3.3 | Test se | ection | |
| | 3.3.1 | Dimensions | 2.2 m x 2.2 m x 4.3 m |
| | 3.3.2 | Type of walls | Slotted top and bottom, solid sides (3% overall open area ratio) |
| 3.4 | Flow f | ield (empty test section) | |
| | 3.4.1 | Reference static pressure | Measured in plenum. Values in Table II. |
| | 3.4.2 | Flow angularity | Maximum lateral velocity components are about 0.005 of free stream at all Mach numbers. |
| | 3.4.3 | Mach number distribution | Streamwise variations of approximately ±0.002 over Mach number range. |
| | 3.4.4 | Pressure gradient | |
| | 3.4.5 | Turbulence/noise level | Lateral fluctuating velocity components \widetilde{V}/U_{∞} and \widetilde{W}/U_{∞} have not been measured. \widetilde{U}/U_{∞} varies from 0.002 at M = 0.2 to about 0.02 at high Mach numbers. |
| | 3.4.6 | Sidewall boundary layer | Thickness varies but is on the order of 7 to 8 cm. |
| 3.5 | Additio | onal remarks | |
| 3.6 | Referen | nces on wind tunnel | |
| Tests | <u>s</u> | | |
| 4.1 | Type of | f measurements | Surface pressure; wake profiles. |
| 4.2 | Tunnel | /model dimensions | |
| | 4.2.1 | Height/chord ratio | 3.46 |
| | 4.2.2 | Width/chord ratio | 3.46 |
| 4.3 | | onditions included in t data base | |
| | 4.3.1 | Angle of attack | 0.5° to 2.5° |
| | 4.3.2 | Mach number | From 0.60 to 0.80 |
| | 4.3.3 | Reynolds number | See figure 9.2. Reynolds number simulations based on refs. 2 and 3. |
| | 4.3.4 | Transition | |
| | | - position of free transition | |
| | | - transition fixing | No. 90 carborundum grains; 0.25 cm wide (0.10 in.) bands along $x/c = 0.28$ on upper and lower surfaces. |
| | | | |

4.3.5 Temperature equilibrium

4.4 Additional remarks

4.5 References on tests

5. Instrumentation

- 5.1 Surface pressure measurements
 - 5.1.1 Pressure holes
 - size

- 0.51 mm (0.020 inch) inside dia.
- spanwise station(s)
- 0.32 chord from tunnel center line
- chordwise positions

Concentrated near the leading and trailing edges as illustrated in figure 9.3. See Table III.

5.1.2 Type of transducers and scanning devices

Electronically actuated differential-pressure scanning valves with transducer ranges of $\pm 69 \text{kN/m}^2$ (10 lb/inch²) for the upper surface and $\pm 52 \text{kN/m}^2$ (7.5 lb/inch²) for the lower surface. Accuracy within 0.5 percent of full scale.

- 5.1.3 Other
- 5.2 Wake measurements
 - 5.2.1 Type/size of instrument(s)

See figure 9.4. 52 pitot probes spaced 0.0036c in region of boundary-layer losses, 0.072c in region of shock losses.

6 static pressure probes spaced about 0.06c in region of boundary layer losses, about 0.2c in region of shock losses.

5.2.2 Streamwise position(s)

Approximately 1 chord length downstream of trailing edge

5.2.3 Type of transducers and scanning devices

Electronically actuated differential-pressure scanning valves with transducer ranges of $\pm 17 \text{kN/m}^2$ (2.5 lb/inch²) in boundary-layer wake and $\pm 7 \text{kN/m}^2$ (1 lb/inch²) for shock and static losses. Accuracy within 0.5 percent of full-scale.

- 5.3 Boundary layer measurements
 - 5.3.1 Type/size of instruments
 - 5.3.2 Locations
 - 5.3.3 Type of transducers and scanning devices
- 5.4 Skin friction measurements
 - 5.4.1 Type/size of instruments
 - 5.4.2 Locations
 - 5.4.3 Type of transducer
- 5.5 Flow visualization
 - 5.5.1 Flow field
 - 5.5.2 Surface flow

Two dimensionality of flow was determined by fluorescent oil flow.

- 5.6 Other
- 5.7 Additional remarks
- 5.8 References on instrumentation

PLEASE OF THE OWNER OF THE PARTY.

6. Data

| 6.1 | Accurac exclude | y (wall interference d) | |
|-----|-------------------------------|--|---|
| | 6.1.1 | Angle of attack setting | <u>+</u> 0.05° |
| | 6.1.2 | Free stream Mach number: | |
| | | - setting | <u>+</u> 0.003 |
| | | variation during one pressure scan | None |
| | 6.1.3 | Pressure coefficients | Less than 2% of maximum value. |
| | 6.1.4 | Aerodynamic coefficients | Less than 2% of maximum value. |
| | 6.1.5 | Boundary layer quantities | |
| | 6.1.6 | Repeatability | Repeatability checked but not plotted. |
| | 6.1.7 | Remarks | |
| 6.2 | | terference corrections te estimated accuracy) | |
| | 6.2.1 | Angle of attack | No corrections applied. |
| | 6.2.2 | Blockage (solid/wake) | |
| | 6.2.3 | Streamline curvature (lift) | |
| | 6.2.4 | Other | |
| | 6.2.5 | Remarks | |
| | 6.2.6 | References on wall interference correction | |
| 6.3 | Present | ation of data | |
| | 6.3.1 | Aerodynamic coefficients | See figure 9.5. |
| | 6.3.2 | Surface pressures | See figure 9.6 and Table IV. |
| | 6.3.3 | Boundary layer quantities | None |
| | 6.3.4 | Wall interference corrections included? | No |
| | 6.3.5 | Corrections for model deflection | None |
| | 6.3.6 | Empty test section calibration taken into account? | |
| | 6.3.7 | Other corrections included? | |
| | 6.3.8 | Additional remarks | |
| 6.4 | differe current facilit | sts carried out in nt facilities on the airfoil? If so, what ies. Are data included present data base? | No |
| 6.5 | | ontacted for further tion on tests | Charles D. Harris NASA Langley Research Center Mail Stop 359 Hampton, VA 23665 |
| | | | |

7. References

- 1. NASA TM X-2336 entitled "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris.
- 2. NASA TN D-5003 entitled "Preliminary Study of Effects of Reynolds Number and Boundary-Layer Transition on Shock-Induced Separation,: by James A. Blackwell, Jr.
- NACA TN 4363 entitled "Simplied Method for Determination of Critical Height of Distributed Roughness Particles for Boundary-Layer Transition at Mach Numbers From 0 to 5," by Albert L. Braslow and Eugene C. Knox.

8. List of symbols

Values are given in both SI and U. S. Customary Units. The measurements and calculations were made in the U. S. Customary Units.

$$C_p$$
 pressure coefficient, $\frac{p_L - P_{\infty}}{q_{\infty}}$

$$c_{p,\, \mathrm{sonic}}$$
 pressure coefficient corresponding to local Mach number of 1.0

$$c_d$$
 section drag coefficient, $\sum c_d' \frac{\Delta z}{c}$

c_m section pitching-moment coefficient,
$$\sum_{\boldsymbol{l}} c_p \; \frac{\Delta x}{c} \left(0.25 \; - \; \frac{x}{c} \; \right) - \sum_{\boldsymbol{u}} \; c_p \; \frac{\Delta x}{c} \left(0.25 \; - \; \frac{x}{c} \right)$$

$$\mathbf{c}_{\mathbf{n}}$$
 section normal-force coefficient,

$$\sum_{\boldsymbol{l}} c_{\mathbf{p}} \, \frac{\Delta \mathbf{x}}{\mathbf{c}} \, - \, \sum_{\mathbf{u}} \, c_{\mathbf{p}} \, \frac{\Delta \mathbf{x}}{\mathbf{c}}$$

M Mach number

p static pressure, N/m² (1b/ft²)

q dynamic pressure, N/m² (1b/ft²)

R Reynolds number based on airfoil chord

t airfoil thickness, cm (inches)

 $\widetilde{\mathbf{u}}$, $\widetilde{\mathbf{v}}$, $\widetilde{\mathbf{w}}$ free stream fluctuating velocity components

 U_{∞} free stream velocity

x ordinate along airfoil reference line measured from airfoil leading edge, cm (inches)

y ordinate vertical to airfoil reference line, cm (inches)

z vertical distance in wake profile, cm (inchesl)

α angle of attack of airfoil reference line, degrees

Subscripts:

L local point on airfoil

l lower surface

te trailing edge

free stream value

CHORDWISE LOCATION OF PRESSURE TAPS

TABLE III

UPPER SURFACE LOWER SURFACE

TABLE 1. AIRFOIL COORDINATES

TABLE II. TUNNEL STATIC PRESSURES

| | S. C. C. | | Mach Number | Static Fressure (MN/m) |
|--------|------------|---------------------------|-------------|-------------------------|
| | Experiment | Experimental (airfoil 9a) | 0.80 | 9990.0 |
| × | у/с | | c c | |
| | Upper | Lower | 67:0 | 0.06/1 |
| 0.0075 | 0.0160 | -0.0165 | 0.76 | 0.0691 |
| .0125 | 9610. | 0201 | | |
| .0250 | .0250 | 0259 | 0.70 | 0.0730 |
| .0375 | .0286 | 0299 | 07 0 | 7000 |
| .050 | .0314 | 0329 | 08.0 | *6/0.0 |
| .075 | .0358 | 0374 | | |
| 100 | .0389 | 0407 | | |
| .125 | .0415 | 0432 | | |
| .150 | .0433 | 0451 | | |
| .175 | .0448 | 0463 | | |
| .200 | .0461 | 0476 | | |
| .250 | 6750. | 0491 | | |
| 300 | .0491 | 0493 | | |
| .350 | .0498 | 0500 | | |
| .400 | .0500 | 0494 | | |
| 655. | .0499 | 0485 | | |
| .500 | .0494 | 0463 | | |
| .550 | .0485 | 0440 | | |
| .575 | .0480 | 0420 | | |
| 009 | .0474 | 0393 | | |
| .625 | .0465 | 0357 | | |
| :650 | .0456 | 0310 | | |
| .675 | .0445 | 0255 | | |
| .700 | .0433 | 0200 | | |
| .725 | .0419 | 0152 | | |
| .750 | .0401 | 0109 | | |
| .775 | .0382 | 0072 | | |
| .800 | .0359 | 0041 | | |
| .825 | .0332 | +100*- | | |
| .850 | .0300 | .0005 | | |
| .875 | .0264 | .0015 | | |
| .900 | .0220 | 9100. | | |
| .925 | 7910. | £000° | | |
| .950 | .0103 | 0025 | | |
| .975 | .0035 | -,0073 | | |
| 066 | 0016 | 0120 | | |
| 1 000 | | | | |

..0040 ..0100 ..0200 ..0300 ..0700 ..1500 ..3000 ..3000 ..3500 ..5500 ..

0.0000 0.0020 0.0200 0.0200 0.0500 0.0500 0.2500

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK

| | STATION | CP | SURFACE | .6574 | .1638 | 0622 | - 1454 | 1475 | 1255 | 1090 | 1035 | 1062 | - 1317 | 1512 | 1252 | .0231 | 3570 | .4220 | .4718 | 4984 | .4968 | .4775 | .4331 | . 4081 |
|---------------|---------|-----|---------------|------------|------------|---------|---------|-------|-------|-------|--------|--------|--------|--------|--------|--------|-------|--------|--------|-------|--------|--------|--------|--------|
| a = 10 | STA | X/C | LOWER | .0040 | .0200 | .0500 | 1000 | .1500 | .2000 | 3000 | .3500 | .4000 | 5000 | . 5500 | 0009 | .6500 | 7500 | .8000 | .8500 | 0006 | . 9300 | .9500 | .9700 | . 9800 |
| MACH = 0.70 | TION | G) | SURFACE | 1.1132 | -1.2942 | -1.1600 | -1.1205 | 6774 | 6274 | 5611 | 5170 | 5099 | - 4955 | 5046 | 5158 | 5373 | 5632 | 5912 | 5544 | 4478 | 3162 | 1996 | 1119 | 0810 |
| £ | STATIO | X/C | UPPER | 0.0000 | .0200 | .0500 | 0000 | .1500 | .2000 | 3000 | .3500 | .4000 | 5000 | . 5500 | 0009 | . 6500 | 7500 | .8000 | .8500 | 0006 | .9300 | . 9500 | . 9700 | 1.0000 |
| | N | d) | SURFACE | .8463 | .3933 | .1668 | 980. | .0213 | .0181 | .0173 | .0173 | .0334 | .0394 | .0902 | 9220. | .0397 | 3437 | .4121 | .4623 | .4905 | .4816 | .4640 | .4249 | .3813 |
| a = 20 | STATION | 3/X | LOWER SU | .0100 | | | | | | | | | | | | | | | | | | | | |
| MACH = 0.60 | NO | do | SURFACE | .9588 | .9079 | . 9844 | .0976 | .7687 | .6750 | .5798 | . 5393 | . 5234 | 4994 | .4891 | . 4957 | . 5068 | .5223 | . 5363 | . 5061 | .4386 | .3327 | .2118 | .1424 | . 0447 |
| | STATION | x/c | UPPER SUF | 0.0000 | | | | _ | | | | | | | | | | | | | | | | |
| | | CP | 4CE | .6720 | 752 366 | 013 | 36 | 215 | 942 | 304 | 744 | 342 | 00 | 304 | 129 | 506 | 123 | 290 | 514 | 962 | 07/ | 295 | 158 | 347 |
| a = 10 | STATION | 3/x | LOWER SURFAC | | .0200 | | ' ' | • | • | ' | • | • | ' ' | • | ' | | | | | | | | | |
| MACH = 0.60 | | CP | CE | 1.0498 .0 | | | | | | | | | | | | | | | | | | | | |
| MA | STATION | x/c | UPPER SURFACE | 0.0000 1.0 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

and make the control of the distribution of the control of the con

A9-7

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

| 01 = . | STATION | X/C CP | LOWER SURFACE | .00405964 .01003706 .02001088 .03000172 .07001829 .15001872 .25001872 .25001872 .25001874 .40001296 .45001296 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .4500126 .5500 - |
|---------------------------------|---------|--------|---------------|---|
| MACH = 0.76 | STATION | X/C CP | UPPER SURFACE | 0.0000 1.1516 .00203584 .02009955 .03009889 .05009883 .07009538 .15009546 .25009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009546 .35009572 .90007393 .85005873 .90007393 .93002772 .93002772 .93002772 |
| 0.76 a = .5 ⁰ | STATION | X/C CP | LOWER SURFACE | .0040 .5077 .0100 .2389 .0200 .0103 .0300 .1290 .0500 .2430 .1000 .2702 .1500 .2702 .2702 .2702 .2703 .2703 .2703 .2703 .2704 .2703 .2704 .2703 .2704 .2703 .2704 .2703 .2704 .1703 .2706 .1703 .2707 .1703 .2700 .2704 .2700 |
| MACH = 0.76 | STATION | x/c cP | UPPER SURFACE | 0.0000 1.1564 .00208400 .03008400 .03008627 .05008611 .20008611 .20008611 .20007848 .25007848 .25007848 .25005153 .30005153 .50005024 .50005025 |
| .70 $a = 2^0$ | STATION | X/C CP | LOWER SURFACE | .0040 .7966 .0100 .3456 .0200 .3456 .0300 .2167 .0500 .0527 .10000017 .15000480 .20000367 .35000443 .35000443 .35000443 .35000459 .45000459 .55000489 .55000489 .55000489 .55000436 .7500 .2795 .7500 .2795 .7500 .2795 .7500 .2795 .7500 .2795 .7500 .2796 .7500 .2796 .7500 .2796 .7500 .2796 .7500 .2796 .7500 .2796 .7500 .2796 .7500 .2796 |
| MACH = 0.70 | STATION | X/C CP | UPPER SURFACE | 0.0000 1.0702 .0020 .0392 .0200 -1.5572 .0300 -1.5575 .0500 -1.5673 .1000 -1.4661 .1500 -1.3508 .2000 -1.4661 .1500 -1.3508 .2000 -1.4661 .1500 -1.3508 .2500 -2507 .40005424 .55005427 .50005439 .65005663 .70005439 .65005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 .70005663 |

A9-9

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

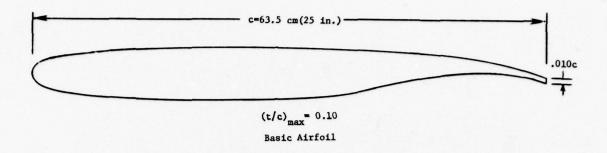
| .50 | STATION | X/C CP | LOWER SURFACE | | 02000292 | | | | | | | | | | | | | | | | | | |
|-----------------------------|---------|--------|---------------|-------|---------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|--------|------|-------|------|--------|------|--------|-----|
| MACH = 0.79 Q = | TON | CP | SURFACE | | 6972 | | | | | | | | | | | | | | | | | | |
| MA | STATION | x/c | UPPER S | _ | 0200 | | | | | | | | | | | | | | | | | | |
| a = 2.5 ⁰ | STATION | X/C CP | LOWER SURFACE | | .0200 .3967 | | | | | | | | | | | | | | | | | | |
| MACH = 0.76 | STATION | X/C CP | JPPER SURFACE | | .0200 -1.3014 | , | | | | | • | | Ċ | | | | | | | | | | |
| | ~ | CP | SURFACE UP | 0 | . 2970 | | | | | | | | | | | | | | | | | | 0.1 |
| $0.76 \mathbf{a} = 2^{0}$ | STATION | x/c | LOWER SU | .0040 | .0200 | .0500 | . 1000 | .1500 | .2500 | . 3000 | .3500 | . 4500 | . 5000 | . 5500 | .6500 | . 7000 | 8000 | .8500 | 0006 | . 9300 | 9200 | . 9800 | |
| MACH = | STATION | X/C CP | UPPER SURFACE | | .0200 -1.2136 | | | | | | | | | | | | | | | | | | |

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

| .50 | LION | CP | SURFACE | .4683 | 0546 | 2288 | 3273 | 3342 | 2516 | 2156 | 2027 | 2079 | 2008 | - 2442 | 1965 | .0108 | .2573 | .3471 | .4133 | .4650 | . 5022 | 5053 | 4909 | 4122 | |
|---------------|---------|-------|---------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|
| | STATIO | x/c | LOWER | .0040 | 0300 | .0500 | 1000 | .1500 | .2500 | 3000 | .3500 | .4000 | .4500 | 5500 | .6000 | .6500 | .7000 | .7500 | .8000 | .8300 | 0006 | . 9300 | 0250 | 9800 | |
| MACH = 0.80 | STATION | do | JPPER SURFACE | 1.1728 | 6453 | 7088 | - 7799 | 27772 | 7653 | 7826 | 7135 | 7068 | 6768 | - 3774 | 4290 | 4822 | 5735 | 6719 | 7767 | 8999 | 3313 | 1/07 | 1080 | 0/62 | |
| | STA | x/c | UPPER | 0.0000 | .0200 | 0500 | .1000 | .1500 | .2500 | .3000 | .3500 | .4000 | . 4500 | 5500 | . 6000 | .6500 | . 7000 | .7500 | 8000 | .8500 | 9000 | 9300 | 0086. | 0000 | |
| 0. | NO | d) | URFACE | .7159 | 2427 | .0342 | 0818 | 0984 | 0723 | 0788 | 0784 | 0798 | 0945 | 1432 | 1126 | .0513 | . 2853 | .3838 | .4517 | . 4935 | . 5295 | 2476. | 7000 | .4506 | |
| a = 20 | STATIO | X/C | LOWER SURFAC | .0040 | .0200 | .0500 | .1000 | .1500 | .2500 | 3000 | .3500 | .4000 | .4500 | . 5500 | 0009 | .6500 | . 7000 | .7500 | .8000 | .8500 | 0006 | 0056 | 0026 | 00/6. | |
| MACH = 0.79 | NC | GP GP | REACE | 1.1586 | 1.0004 | 1.0223 | .0377 | 1.0598 | 1.0208 | 1.0178 | 9525 | 9561 | 9364 | 9407 | . 9359 | .9535 | . 9845 | 1.0387 | 5370 | 3640 | 2490 | 2001 | . 1583 | . 1321 | .1014 |
| | STATION | X/C | UPPER SURFACI | 0.0000 | | | | | | | | | | | | | | | | | | | | | |
| | NO | d) | SURFACE | .5835 | .0890 | 0111 | 2024 | 2197 | 1793 | 1355 | 1375 | 1467 | 1381 | 1855 | 1512 | .0421 | .2738 | .3715 | .4402 | .4976 | . 5223 | . 5549 | 6/06. | .4732 | |
| a = 10 | STATION | x/c | LOWER SI | .0040 | .0200 | .0500 | 1000 | .1500 | .2500 | 3000 | .3500 | . 4000 | . 4500 | . 5500 | .6000 | .6500 | .7000 | .7500 | .8000 | .8500 | 0006. | 9300 | 0006 | 00%6. | |
| MACH = 0.79 | NO | do | RFACE | 1.1727 | 8352 | 8520 | 9127 | 8964 | 8870 | 8593 | 8269 | 8226 | 8062 | 7898 | 7614 | 6179 | 4982 | 5688 | 6/48 | 7682 | 3585 | 6077 | 2671 | 0546 | 0291 |
| | STATION | x/c | UPPER SURFACE | 0.0000 | .0200 | .0500 | .1000 | .1500 | . 2500 | .3000 | .3500 | .4000 | 5000 | . 5500 | 0009 | . 6500 | . 7000 | . 7500 | 0008 | .8500 | 0006 | 0000 | 0026 | 0086 | 1.0000 |

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONCLUDED)

| | | • | , E | 638 | 554 | 35 | 126 | 214 | 197 | 606 | 570 | 533 | 531 | 929 | 280 | 353 | 204 | 382 | 740 | 994 | 34/ | 904 | 194 | COZ | 80 | 285 | 335 | |
|--------|---------|-----|---------|--------|-------|-------|-------|-------|------|--------|------|-------|-------|-------|--------|--------|-------|-------|-------|------|-------|----------|------|-------|--------|------|--------|-------|
| ٥١ = | STATION | d) | SURFACI | 3.5. | 0.0 | 5 7 | - | 2 | | - 1 | - | - | | | - | | | 0 | 2.6 | 7) 4 | 4. | 4 r | | č. | .5 | . 4 | 4. | |
| 8 | STA | X/C | LOWER | .0040 | .0200 | .0500 | .0700 | 1000 | 2000 | . 2500 | 3000 | 3200 | .4000 | .4200 | . 5000 | . 5500 | 0009 | .6500 | .7000 | 0000 | .8000 | 0000 | 0006 | 0006. | . 9500 | 9700 | . 9800 | |
| = 0.80 | | | | 9.50 | 0.5 | nω | 4 | 7 | 0 = | .5 | 1 | 4 | _ | 0 | 3 | 8 | 1 | 3 | 2 | 2 9 | 0 0 | . | 0.5 | + | 2 | m, i | _ | m |
| MACH | STATION | CP | SURFACE | 1.1789 | 783 | 775 | 869 | 863 | 848 | 864 | 835 | 796 | 803 | 783 | 783 | 177 | 788 | 807 | 839 | 89 | 933 | 404 | 707 | - | 115 | 084 | 0/ | 06/ |
| | STA | X/C | UPPER | 0.0000 | .0200 | .0500 | .0700 | 0001. | 2000 | .2500 | 3000 | .3500 | .4000 | .4500 | . 5000 | .5500 | .6000 | .6500 | 7000 | 0067 | 0008 | 8200 | 0006 | 9300 | . 9500 | 9700 | .9800 | 0000. |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |





1.0- percent-thick trailing edge with cavity Trailing-edge geometry for airfoil 9a

Figure 9.1.- Airfoil Geometry

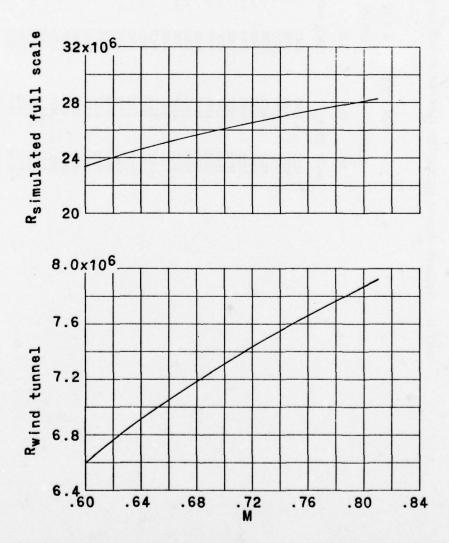


Figure 9.2.- Variation with Mach number of test wind-tunnel Reynolds number and simulated full-scale Reynolds number.

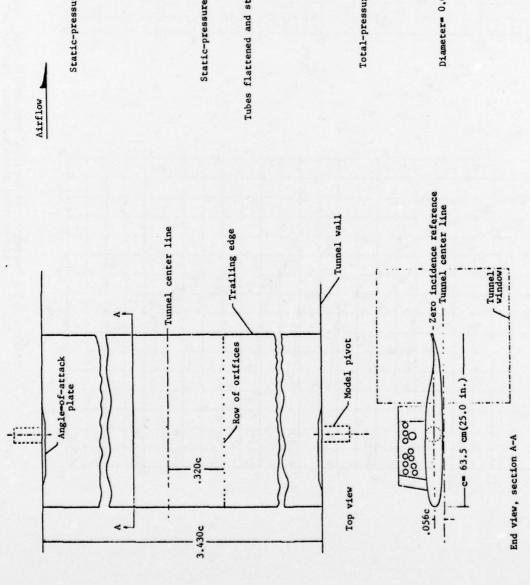


Figure 9.3.- Airfoil mounted in tunnel.

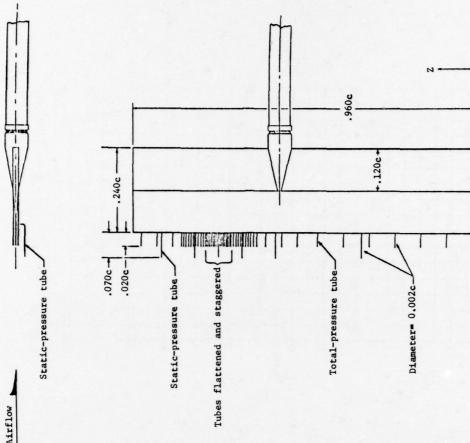
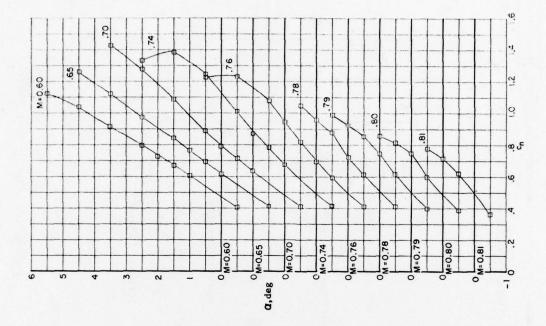


Figure 9.4.- Profile-drag rake.



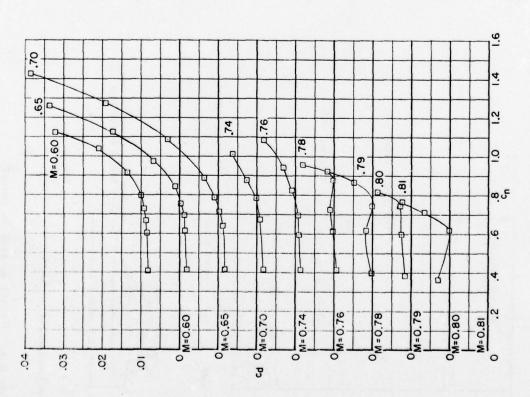
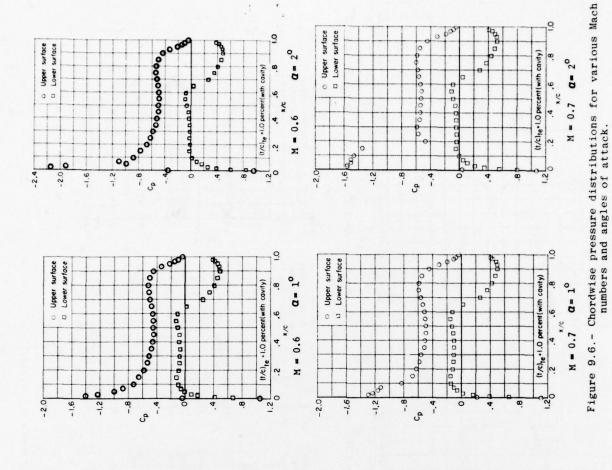


Figure 9.5.- Variation of section drag coefficient, angle of attack, and section pitching-moment coefficient at various Mach numbers.



02. 区

0 M=0.79

0 M=0.80

0 M=0.81

40.-

-.08

M=0.60

OM=0.70

OM=0.65

07.50.80

9. 0

0 M= 0.76

M=0.74

OM = 0.78

74

92.

87. 0-0

-.12

9 1.-

80

000

Figure 9.5.- Concluded.

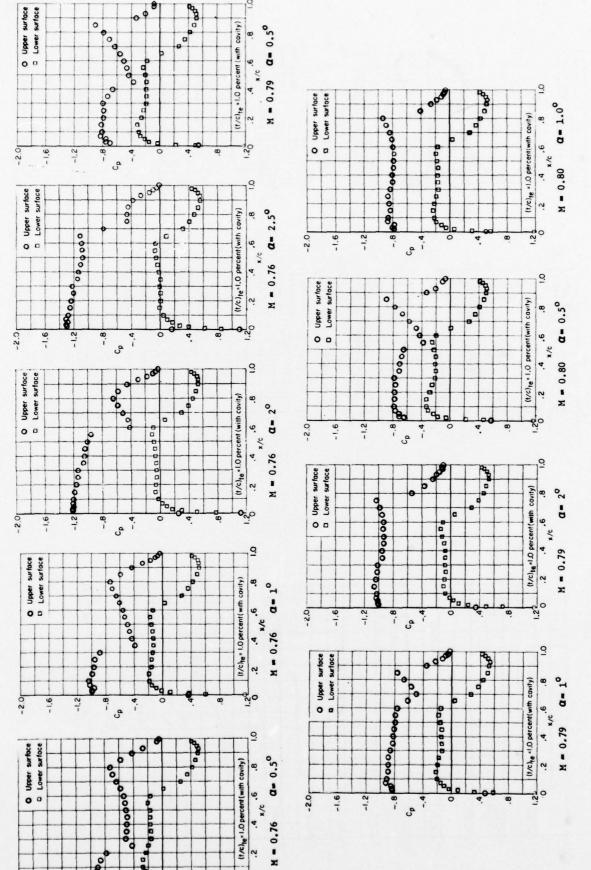
0.

8.5

-246

-.20

6.



4

0

-1.6

-1.2

80

Figure 9.6.- Concluded.

APPENDIX B

3D Configurations

O. <u>Guide to the data</u>. The purpose of this compilation is to make readily available data of high quality for a variety of wing and wing/body configurations for use in validating theoretical methods. The accuracy of the latest numerical methods in solving various forms of the transonic flow equations is a particular concern, therefore, special emphasis has been placed on the inclusion of high-subsonic-speed data. A further desire has been to include configurations ranging from simple to the most complex. Configuration B-2 (ONERA AFVD), for example, is an untapered wing with constant airfoil section from root to tip and no body while configuration B-5 is a complete aircraft configuration with as complicated a wing geometry as one is likely to encounter.

To facilitate the utilization of this data base a single format has been used to present the information for all the configurations, paralleling very closely that used for the 2D configuration. Sections are included giving a general description of the model, the geometric characteristics of the model, the characteristics of the wind tunnel used, details of how the tests were conducted, the types and accuracies of the instrumetation and, finally, a listing of the data tables and plots appended. References are given for most of the configurations from which the reader may obtain additional details on the model, the test procedures, the data obtained and the wind tunnel used.

A brief summary of the geometric characteristics and test conditions for the five wing and wing/body data sets are given below. It can be seen that the Reynolds numbers range from 1 to approximately 11.7 million (B-4 and B-1 respectively) and Mach numbers from 0.4 (B-4) to 0.99 (B-5). With the exception of B-4 aeroelastic corrections have not been applied to the data. Measured angles of attack have been corrected for induced wall effects in both B-4 and B-5; sufficient data is given in B-1, B-2 and B-3 to enable the reader to apply corrections if he desires.

Finally, it should be noted that if additional information is desired on the tests or wind tunnel facilities, addresses of the organizations which carried out the tests are given in item 3.10 of each data set.

MODEL GEOMETRY AND TEST CONDITIONS FOR WING AND WING/BODY DATA

| | | | | | Dat | ta Present | ted For - |
|-------------|-------------------|---|--|----------------|-----------------|-----------------------------|--|
| Data Set | Wing Wing/Body | Leading Edge Sweep | Aspect Ratio | Taper Ratio | Mach Range | Angle of Attack Range | RN Range Based on m.a.c. |
| B-1 | Semi-span Wing | 30° | 3.8 | 0.562 | 0.7 to 0.92 | 00 to | ~11.7 x 10 ⁶ |
| B-2 | Semi-span Wing | Variable, data given for 00, 300 and 500 | 8.0 for 0° sweep and 2.7 for 60° sweep | 1.0 | 0.7 to 0.92 | 0° to | 2.5 x 10 ⁶ based on chord normal to L.E. |
| B-3 | Wing/body | 350 | 4.5 | 0.33 | 0.65 to 0.92 | -2 to | 1.12 x 10 ⁶ to 1.34 x 10 ⁶ |
| B-4 | Wing/body | 36.65 ⁰ | 6.0 | 0.33 | 0.4 to 0.9 | 0° to | 1 x 10€ |
| B-5 | Wing/body | 44.34° | 6.8 | 0.36 | 0.5 to 0.99 | -4° to | 2.37 x 10 ⁶ to 2.68 x 10 ⁶ |

PRESSURE DISTRIBUTIONS ON THE ONERA-M6-WING AT TRANSONIC MACH NUMBERS

by

V. SCHMITT and F. CHARPIN

OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES 92320 - CHATILLON - FRANCE

1.1 - INTRODUCTION -

In 1972, the ONERA Aerodynamics Department designed a swept back wing very well instrumented to be used as an experimental support for basic studies of three-dimensional flows at high Reynolds numbers from low to transonic speeds.

Wind tunnel data from this model called M6-winghave been constituting a good base both for computer program assessment and for understanding various flow phenomena like shock wave-boundary layer interaction or flow separation.

The selected data set was obtained in the ONERA S2MA wind tunnel at Mach numbers of 0.7, 0.84, 0.88 and 0.92 for angles of attack up to 6 degrees and a Reynolds number of about 12 million.

1.2 - DATA SET -

1. General description

1.1 Model designation or name ONERA Wing M6
1.2 Model type (e.g., full span wing-body; semi-span wing) semi-span wing (see also figures B1-1 and B1-2)
1.3 Design requirements/conditions this model was designed to be used for studies of three-dimensional flows from low to transonic speeds at high Reynolds numbers.
1.4 Additional remarks it is derived from the ONERA calibration model series M and represents the external third of the wing.

2. Model geometry

| | 2.1 | Wing | data |
|--|-----|------|------|
|--|-----|------|------|

| | 6 4444 | |
|-----|--|---|
| 2.1 | .1 Wing planform | swept back (see figure B1-1) |
| 2.1 | .2 Aspect ratio | 3.8 |
| 2.1 | .3 Leading-edge sweep | 300 |
| 2.1 | .4 Trailing-elge sweep | 15.80 |
| 2.1 | .5 Taper ratio | 0.562 |
| 2.1 | .6 Twist | without twist |
| 2.1 | .7 Mean aerodynamic chord | c = 0.64607 m |
| 2.1 | .8 Span or semispan | b = 1.1963 m |
| 2.1 | .9 Number of airfoil sections used to define wing | |
| 2.1 | .10 Spanwise location of reference section and section coordinates (note if ordinates are design or actual measured values) | y/b = 0 section coordinates of the symmetrical profile (design values): see table B1-1. The section is ONERA D normal to the generator at 40.18 % chord |
| 2.1 | .11 Lofting procedure between reference sections | conical generation |
| 2.1 | .12 Form of wing-body fillet, strakes | no body, no strake, no fillots |

2.1.13 Form of wing tip truncation parallel to wing root and addition of a half body of revolution 2.2 Body data (detail description of body no body geometry) 2.3 Fabrication tolerances/waviness 0.15 mm 2.4 Additional remarks see also figure B1-1 3. Wind tunnel S2MA (ONERA - Modane Center) 3.1 Designation 3.2 Type of tunnel 3.2.1 Continuous or blowdown. continuous Indicate minimum run time if appli cable from 0.3 bar to a limit stagnation pressure depen-3.2.2 Stagnation pressure ding slightly on the Mach number : Pomax < 2.5 bar 3.2.3 Stagnation temperature from 287°K to 320°K 3.3 Test section 3.3.1 Shape of test section square height: 1.770 m width: 1.750 m 3.3.2 Size of test section (width, height, length) perforated length: 5.4 m 3.3.3 Type of test section walls: vertical solid walls - horizontal perforated walls closed, open, slotted, perforated Open area ratio (give range if variable) maximum geometric porosity : 6 % - possibility of changing the porosity with sliding plates sixty degree inclined holes (diameter: 18 mm) Slot/hole geometry (e.g., 30-degree slanted holes) Treatment of side wall boundary layer: Full span models no treatment Half-model testing B.L. diverter 3.4 Flow field (empty test section) 3.4.1 Reference static pressure on the vertical wall, 2.685 m upstream of the balance 3.4.2 Flow angularity unknown 3.4.3 Mach Number distribution Δ M/meter, in x-direction = $\frac{+}{3}$ 3x10⁻³/m for 0.7 < M < 0.92 3.4.4 Pressure gradient according to 3.4.3 3.4.5 Turbulence/noise level velocity turbulence: 0.2 % - ref. 1 displacement thickness: $\delta_4 = 12$ to 18 mm 3.4.6 Side wall boundary layer boundary layer thickness: $\delta = 90$ to 170 mm 3.5 Freestream Mach number (or velocity) 3.5.1 Range from Mo = 0.1 to 1.353.5.2 Pressures used to determine Mach settling chamber total pressure and static pressure on the vertical wall number (e.g. settling chamber total pressure and plenum chamber pressure) $\Delta M = \frac{+}{2} 0.001$ 3.5.3 Accuracy of Mach number determination (AM) 3.5.4 Maximum Mach number variation in see 3.4.3 x, y, z-direction (empty tunnel; specify at what Mach number) Maximum variation of flow upwash ~ 0.3 degree (function of the model size) direction

Maximum Mach number variation during a run

3.6 Reynolds number range

3.6.1 Unit Reynolds number range (give range at representative Mach numbers; 1/m)

3.6.2 Means of varying Reynolds number (e.g., by pressurization)

3.7 Temperature range and dewpoint. Can temperature be controlled?

3.8 Model attitudes

3.8.1 Angle of attack, yaw, roll

3.8.2 Accuracy in determining angles

3.9 Organization operating the tunnel and location of tunnel

3.10 Who is to be contacted for additional information

3.11 Literature concerning this facility

3.12 Additional remarks

the Mach number is adjustable at \$\frac{1}{2}\$ 0.001; during a continuous angle of attack variation the Mach number is not kept strictly constant and depends on model size and Mo.

Mo: 0.25 0.50 0.72 1. 1.35

 $(Re/m)_{max}$ 10⁻⁶: 14 21 33 27 27

stagnation pressure Po = 0.3 to 2.5 bar for $M \leq 0.7$

0.3 to 1.75bar for M > 1 0.3 to 2.1bar for M = 0.8

0.3 to 1.9 bar for M = 0.9

stagnation temperature To = 292 K $^{+}$ 5 $\,$ to 315 K $^{+}$ 5 cannot be controlled

humidity < 0.2g H₂0/Kg air

motorization for the 3 angles up to 35° (for complete model)

0.03 degree

ONERA - Centre de Modane-Avrieux

ONERA - Direction GME - Chatillon - FRANCE

ref. 2. 3

0.7

on line data return

4. Tests

4.1 Type of tests

pressure distributions, aerodynamic forces and moments, flow studies by visualization (wall streamlines and boundary layer transition), unsteady measurements

4.2 Wing span or semispan to tunnel width

ng span or semispan to tunnel width

4.3 Test conditions

4.3.1 Angle of attack

during pressure measurements: ∞ max <14° for all Mach numbers and Re_C < 18×10° (for force measurements, because of the limited capacity of the balance, there is a large variation of α max with M and Re)

4.3.2 Mach number

4.3.3 Dynamic pressure

4.3.4 Reynolds number

4.3.5 Stagnation temperature

0.27 < Mo < 1.33

 $1600 < qo < 60700 \text{ N/m}^2$

 $1.5 \times 10^6 < R_{e_c} < 15 \times 10^6$

~300 K

variable

4.6 Transition

4.4.1 Free or fixed

free

4.4.2 Position of free transition

4.4.3 Position of fixed transition,

width of strips, size and type of roughness elements

4.4.4 Were checks made to determine if transition occured at trip locations?

not relevant

not relevant

4.5 Bending or torsion under load

4.5.1 Describe any aeroelastic measurements made during tests

Section of the day of the second

unsteady bending measured by strain-gauge on the wing root

| | | 4.5.2 | Describe results of any bench calibrations | not relevant |
|----|------|---------|--|---|
| | | | | |
| | 4.6 | wind-t | different sized models used in sunnel investigation ? indicate sizes | no |
| | 4.7 | | and lengths used to form cients | $S = 0.7532 \text{ m}^2$ $c = 0.64607 \text{ m}$ |
| | 4.8 | Refere | ences on tests | ref. 4, 5 |
| | 4.9 | Relate | d reports | ref. 6, 7 |
| 5. | Inst | rumenta | tion_ | |
| | 5.1 | Surfac | e pressure measurements | |
| | | | Pressure orifices in wing. Location and number on upper and lower surfaces | 271 pressure orifices divided in 7 sections (y/b = 0.20/0.44/0.65/0.80/0.90/0.96 and 0.99) see also figure B1-1 and table B1-2 |
| | | 5.1.2 | Pressure orifices on fuselage. Location and number | not relevant |
| | | 5.1.3 | Pressure orifices on components, give components and orifice location | not relevant |
| | | 5.1.4 | Geometry of orifices | Ø 0.8 mm |
| | | 5.1.5 | Type of pressure transducer and scanning devices used. Indicate range and accuracy | 6 transducers CEC 4312 (± 12.5 PSID - Accuracy : ± 0.012 PSI) 6 scanivalves (type D) |
| | 5.2 | Force | measurements | |
| | | 5.2.1 | Type and location of balance | wall dynamometric 5 components balance" 120 mm" |
| | | 5.2.2 | Forces and moments that can be measured. Maximum loads and accuracy | axial force: 12000 [±] 12 N normal force: 65000 [±] 65 N rolling moment: 8000 [±] 8 mN pitching moment: 2500 [±] 2.5 mN yawing moment: 1400 [±] 1.4 mN |
| | | 5.2.3 | Forces and moments on components | not relevant |
| | 5.3 | | ry layer and flow-field ements | none |
| | 5.4 | Surfac | e flow visualization | |
| | | 5.4.1 | Indicate method used to determine | |
| | | | - streamline pattern | by means of fluid paints |
| | | | - boundary-layer transition | by sublimation |
| | | 5.4.2, | Accuracy of method | qualitative methods |
| | 5.5 | Skin f | riction measurements | none |
| | 5.6 | Simula | tion of exhaust jet | not relevant |
| | 5.7 | Additi | onal remarks | there is strain gauge, kulite and accelerometer instrumentation for buffeting analysis |
| | Data | | | |
| | 6.1 | Accura | су | |
| | | | | |

6.

6.1.1 Pressure coefficients

6.1.2 Aerodynamic coefficients

at Mo = 0.84; Δ Cp = $\frac{+}{-}$ 0.02

at Mo = 0.84 : $\triangle C_X = \frac{+}{2}$ 0.002 , $\triangle C_1 = \frac{+}{2}$ 0.002 $\triangle C_m = \frac{+}{2}$ 0.006 $\triangle C_n = \frac{+}{2}$ 0.003

6.1.3 Boundary layer and wake quantities

6.1.4 Repeatability

not relevant

see tables B1-2 and B1-3 or B1-10 and B1-11

6.2 Wall interference corrections

no corrections

6.3 Data presentation

6.3.1 Aerodynamic coefficients

none

6.3.2 Surface pressure coefficients

Cp (x/1) for all sections defined 5.1.1

6.3.3 Flow conditions for

- aerodynamic coefficient data

not relevant

- pressure data

Mo = 0.70/0.84/0.88/0.92 at Re $\sim 11.7 \cdot 10^6$ and angles of attack $\propto = 0^\circ$ to 6°

detail: T2 means table B1-2 F3 means figure B1-3

| Mo Mo | 0.70 | 0.84 | 0.88 | 0.92 |
|----------|------------|-----------|------------|---------|
| 00 | T2/3 | T10/11 F3 | T18 | T25 |
| 10 | Т4 | T12 F4 | T19 | T26 |
| 20 | Т5 | T13 F5 | T20 | T27 |
| 30 | T6 F10 | T14 F6/ | 11 T21 F12 | T28 F13 |
| 40 | Т7 | T15 F7 | T22 | T29 |
| 5° | T 8 | T16 F8 | T23 | Т30 |
| 60 | T 9 | T17 F9 | T24 | T31 |

6.3.4 Boundary layer and/or wake data

none

6.3.5 Flow conditions for boundary layer and/or wake data

not relevant

6.3.6 Wall interference corrections included ?

no

6.3.7 Aeroelastic corrections included ?

no

6.3.8 Other corrections ?

6.4 Were tests carried out in different facilities on the current model ? If so, what facilities. Are data included in present data base ?

A Section of the distribution of the second

not at transonic Mach numbers

7. References

1. X. VAUCHERET

Fluctuations acoustiques engendrées par les parois perméables d'une soufflerie transsonique AGARD CP 174 (Octobre 1975)

2. M. PIERRE G. FASSO

The aerodynamic test center of Modane-Avrieux ONERA Technical Note nº 166E (1972)

Cı

3 M. PIERRE Exploitation du centre d'essais aérothermodynamiques de Modane-Avrieux Note technique ONERA nº 181 (1971) G. FASSO 4. M. GOUSSE Etude de l'écoulement autour de l'aile M6 en transsonique à S2MA P.V. nº 2/0065 GY (1973) - not published 5. F. CHARPIN Etude de l'écoulement autour de l'aile M6 en transsonique à S2MA P.V. nº 5/1713 ANG (1974) - not published 6. B. MONNERIE Essais de tremblement (buffeting) d'une aile en flèche en transsonique F. CHARPIN L'Aéronautique et l'Astronautique nº 50 (1975-1), p. 3-16 7. C. ARMAND Etude de la couche limite par détecteurs à film chaud en écoulement subsonique et transsonique La Recherche Aérospatiale nº 1976-3, p. 127-133 8. List of symbols b : semi-span 1 : local chord : mean aerodynamic chord : wing area : distance measured along the local chord from the leading-edge of the wing section : distance measured spanwise : distance from the plane of the wing : distance measured chordwise from wing apex : angle of attack Mo : free stream Mach number : local Mach number : stagnation pressure Po : free stream static pressure : free stream dynamic pressure qo : local static pressure Cp : pressure coefficient To : stagnation temperature R_{e_c} : Reynolds number based on c : axial force coefficient CX CZ : normal force coefficient

: rolling moment coefficient

pitching moment coefficientyawing moment coefficient

M6 WING STREAMWISE SECTION COORDINATES (DESIGN VALUES)

| ×/1 | z/I | x/I | z/I |
|-----------|-----------|-----------|-----------|
| | 0.0 | 0.3761446 | 0.0439296 |
| 0.0 | 0.0006914 | 0.4018567 | 0.0439202 |
| 0.0000165 | 0.0014416 | 0.4274223 | 0.049493 |
| 0.0000696 | 0.0014415 | 0.4528441 | 0.0479351 |
| 0.0001675 | 0.0031392 | 0.4781197 | 0.0471651 |
| 0.0003232 | 0.0040959 | 0.5032514 | 0.0461903 |
| 0.0005509 | 0.0040939 | 0.5282426 | 0.0450203 |
| 0.0003657 | | 0.5532937 | 0.0436741 |
| 0.0012868 | 0.0062598 | 0.5779043 | 0.0421584 |
| 0.0013364 | 0.0074784 | 0.6023757 | 0.040524 |
| 0.0025441 | 0.0037958 | 0.6268104 | 0.038761 |
| 0.0034428 | 0.0102163 | 0.6511093 | 0.0368990 |
| 0.0045704 | 0.0117419 | 0.6752726 | 0.034954 |
| 0.0059751 | 0.0133708 | 0.6752726 | 0.0329402 |
| 0.0077112 | 0.0150951 | 0.7231995 | 0.0308662 |
| 0.0098413 | 0.0168984 | | 0.0297369 |
| 0.0124479 | 0.0187537 | 0.7469658 | |
| 0.0156171 | 0.0206220 | 0.7705798 | 0.026550 |
| 0.0194609 | 0.0224545 | 0.7941055 | 0.024302 |
| 0.0241967 | 0.0242004 | 0.0174828 | 0.0219942 |
| 0.0297008 | 0.0258245 | 0.8407324 | 0.019583 |
| 0.0364261 | 0.0273317 | 0.8638564 | 0.017091 |
| 0.0444852 | 0.0297912 | 0.8968235 | 0.0145051 |
| 0.0541249 | 0.0303278 | 0.9061205 | 0.0122389 |
| 0.9656303 | 0.0320138 | 0.9225336 | 0.0102727 |
| 0.0793366 | 0.0338372 | 0.9363346 | 0.0085827 |
| 0.0956354 | 0.0357742 | 0.9479946 | 0.0071423 |
| 0.1149796 | 0.0377923 | 0.9578511 | 0.0059224 |
| 0.1378963 | 0.0398522 | 0.9661860 | 0.0048907 |
| 0.1649976 | 0.0419090 | 0.9732361 | 0.0040190 |
| 0.1313327 | 0.0436214 | 0.9792020 | 0.0032796 |
| 0.2187096 | 0.0450507 | 0.9342508 | 0.0026547 |
| 0.2453310 | 0.0462358 | 0.7885252 | 0.002125 |
| 0.2717978 | 0.0471987 | 0.9921433 | 0.0016775 |
| 0.2731113 | 0.0479494 | 0.9952090 | 0.0015085 |
| 0.3242776 | 0.0494902 | 0.9979030 | 0.0009773 |
| 0.3502930 | 0.0488183 | 1.0000000 | 0.0007057 |

TABLE B1-1

TEST 2309

CP

MO = .6999 ALPHA = .04 REC = 11.74*10**6

| | SECTION | • | | SECTION | 2 | | SECTION | 3 | | SECTION | 4 |
|-----|----------|--------|------------|------------------|--------|------|--------------------|---------|------------|---------|---------|
| NP | X/L | 1/1 | CP | X/L | 2/1 | CP | x/L | 2/1 | CP | x/L | 1/1 |
| 12 | .95010 | 00726 | . 100 | .94937 | 00735 | .127 | . 94 999 | 00737 | .155 | .94937 | 00731 |
| 11 | .41597 | 03193 | 167 | .81705 .66698 | 02182 | 045 | . 31986 | 02152 | 329 | . 32223 | 02125 |
| 9 | .56589 | 04301 | 240 | - 56 705 | 04294 | 156 | .67008 | 03353 | 145 | .57216 | 03537 |
| 9 | . 46500 | 94773 | 291 | . 46705 | 04769 | 282 | . 47037 | 04763 | 279 | .47220 | 04755 |
| 7 | . 365 90 | 04789 | 296 | . 36705 | 04889 | 289 | .37069 | 04 290 | 310 | .37235 | 04891 |
| 5 | . 16594 | 04194 | 261 | .16697 | 04202 | 292 | .17010 | 04 224 | 275 | .17242 | 04723 |
| 4 | . 04203 | 02971 | 332 | .04909 | 02958 | 362 | .05016 | 32975 | 519 | .05017 | 62974 |
| 2 | .02002 | 02268 | 517 | .01922 | 02242 | 522 | .02010 | 02275 | 485 | .01997 | 02268 |
| 1 | .00034 | .00292 | .802 | .00031 | .00277 | .802 | . 00042 | .00317 | . 795 | .00000 | .00000 |
| 34 | .00216 | .01592 | .603 | .00108 | .00553 | .573 | .00222 | .00806 | .532 | .05215 | .00787 |
| 32 | -02017 | .02282 | 338 | .01905 | .01531 | 491 | .00914 | .01640 | 066 | .00893 | .01519 |
| 31 | .03525 | .02701 | - 388 | .03402 | .02674 | 442 | .03508 | .02698 | 681 | .03530 | 10750. |
| 30 | .04036 | .03130 | 266 | .05911 | .03113 | 296 | .06322 | .03626 | 533 | .06011 | .03127 |
| 28 | .15017 | .04080 | 235 | .14927 | .04071 | 268 | . 15032 | .04073 | 295 | . 15024 | .04073 |
| 27 | .20044 | .04413 | 240 | . 19709 | .04405 | 294 | . 20029 | .04411 | 30 1 | . 20015 | .04413 |
| 25 | .30050 | .04800 | 261 | .25083 | .04649 | 291 | . 25024 | .04647 | 301 | .25021 | .04647 |
| 24 | . 55050 | .04879 | - 284 | . 34927 | .04878 | 290 | . 35024 | .34879 | 315 | . 35015 | .04879 |
| 5.3 | 45030 | .04886 | 297 | . 39931 | .04886 | 308 | .40037 | -04835 | 508 | . 39977 | .04835 |
| 21 | .50339 | .94649 | 277 | 49927 | .04652 | 287 | .50024 | .04813 | 293 | .50020 | .04649 |
| 50 | .55725 | -04394 | 255 | .54727 | .04398 | 243 | . 55042 | .04392 | 240 | .55033 | . 64373 |
| 19 | .65032 | .04075 | 228 | .59931 | .04083 | 210 | .65071 | .04073 | 203 | .65015 | .04079 |
| 17 | .71026 | .03219 | 159 | .70397 | .03229 | 129 | .71034 | .03218 | 128 | .70977 | .03222 |
| 16 | .73026 | .02561 | 113 | .77912 | .02572 | 078 | . 78008 | .02563 | 069 | .78612 | . 02562 |
| 14 | .95021 | .01011 | 039 | .91929 | .01826 | 007 | .92012 | .01815 | .006 | .85010 | .01815 |
| 13 | . 98518 | .00265 | .164 | .98387 | .00283 | .186 | .98611 | .00251 | .198 | .98498 | .00267 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | 5551104 | | | SECTION | | | SECTION | 7 | | | |
| NP | x/1 | 7/1 | CP | X/L | 1/1 | CP | x/L | 1/1 | C P | | |
| 15 | . 24277 | 00731 | .142 | .94953 | 00734 | .134 | .94746 | 00755 | .114 | | |
| 14 | . 34254 | D1827 | .027 | .84934 | 01823 | .035 | . 84 958 | 01821 | .034 | | |
| 13 | .75003 | 07951 | 057 | .74265 | 02854 | 039 | .75002 | 02850 | 030 | | |
| 12 | .54293 | 03713 | 121 | .64980 | 03714 | 101 | .64757 | 03715 | 080 127 | | |
| 10 | .44000 | 04914 | 242 | . 44999 | 04814 | 210 | .44976 | 04816 | 177 | | |
| 9 | .35016 | 04646 | 258 | .34997 | 04880 | 219 | . 34973 | 04879 | 192 | | |
| 7 | .15054 | 04081 | 280 | .15015 | 04078 | 271 | . 14996 | 04076 | 231 | | |
| 6 | .10029 | 03625 | 290 | .10019 | 03624 | 30 1 | .10039 | 03627 | 274 | | |
| 4 | .04030 | 02789 | 411 | .06521 | 03198 | 355 | .04325 | 02813 | 484 | | |
| 3 | .02030 | 02282 | 512 | .01985 | 02268 | 527 | .01985 | 05566 | 531 | | |
| , | .00537 | 01314 | .781 | .00367 | 01305 | .197 | .00573 | 01313 | . 362 | | |
| 45 | .00184 | .00727 | .085 | .00193 | .00749 | .454 | . 30193 | .30757 | .417 | | |
| 43 | .00526 | .01361 | 109 | .00623 | .01365 | 310 | .00630 | .01368 | 617 | | |
| 42 | -02204 | .02272 | 591 | .01983 | 89220. | 660 | - 02012 | . 32277 | 588 | | |
| 41 | .07999 | .02581 | 579 | .02991 | .02584 | 569 | . 02999 | .02583 | 645 | | |
| 40 | .07648 | -03322 | 197 | .04777 | .03329 | 443 | .04995 | .02970 | 435 | | |
| 38 | .02224 | .03621 | 518 | . 09991 | .03620 | 327 | .09990 | .03621 | 290 | | |
| 37 | 17777 | .04296 | 317 | .13983 | .03994 | 296 | .13976 | .03995 | 250 | | |
| 35 | .22001 | .04515 | 290 | .22010 | .04514 | 258 | . 21990 | .04514 | 218 | | |
| 34 | -25764 | -04681 | 278 | .25975 | .04681 | 245 | 25976 | .04682 | 216 | | |
| 33 | . 53025 | .04269 | 271 261 | . 34 00 9 | .04799 | 240 | . 29786 . 33979 | .04868 | 202 | | |
| 31 | - 37794 | .04892 | 258 | . 37 994 | .04891 | 224 | 17976 | .04892 | 190 | | |
| 30 | .41757 | .04867 | 749 | .41988 | .04867 | 217 | .41988 .45976 | .04869 | 261 | | |
| 29 | 45775 | .04650 | 245 | .45975 | .04790 | 208 | . 47987 | . 34647 | 157 | | |
| 27 | . 5 3050 | .04452 | 157 | .53785 | .04450 | 169 | . 53975 | .04452 | 131 | | |
| 25 | .57941 | .04214 | 156 | .57791 | .04210 | 131 | . 57785 | .04214 | 105 | | |
| 24 | . 65968 | -03677 | 107 | -65979 | .03635 | 090 | -65966 | . 33636 | 068 | | |
| 25 | .69970 | .03303 | 087 | .69975 | -03308 | 060 | .69979 | .03308 | 050 | | |
| 22 | .73940 | .07949 | 064 | .73970 | .02946 | 045 | .73980 | .02570 | 010 | | |
| 50 | .81957 | .02157 | .007 | .81765 | .02154 | .615 | . 81985 | .02150 | . 318 | | |
| 19 | . 95055 | .01709 | .044 | .85980 | .01707 | .049 | . 85 94 3 | .01712 | .073 | | |
| 17 | .94727 | .00755 | .141 | .94861 | .00742 | .135 | .94959 | .00733 | . 115 | | |
| 16 | .98506 | .30266 | .201 | .98467 | .00272 | .136 | . 98455 | .36274 | .158 | | |
| | | | | | | | | | | | |

TABLE B1-2

CP

.140
-.016
-.130
-.195
-.265
-.279
-.285
-.271
-.525
-.460
-.253
-.790
-.102
-.009
-.511
-.296
-.203
-.206
-.208
-.284
-.206
-.215
-.180
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216
-.216

M6 WING - SUPFACE PRESSURE DISTRIBUTIONS

TEST 2551

MO = .6977 ALPHA = .06 REC = 11.67*10**6

| | SECTION | 1 | | SECTION | 2 | | SECTION | 3 | | SECTION | 4 |
|---|--|--|--|---|--|--|--|---|--|--|---|
| NP | */1. | 1/1 | CP | x/L | 111 | CP | X/L | 1/1 | CP | X/L | 111 |
| 12 111 10 9 8 7 6 5 4 3 2 1 1 3 4 3 3 2 2 3 1 3 2 2 2 2 2 2 2 2 2 2 2 2 2 | 950 19 81592 -66593 -66593 -66593 -66593 -66593 -66593 -66593 -6692 -6903 - | - 00 7 726 - 021 93 - 03 193 - 03 187 - 04 197 - 04 197 - 04 197 - 02 268 - 01 133 - 02 292 - 02 193 - 03 193 - 03 193 - 03 193 - 04 | .097 -0666 -1657 -287 -287 -291 -279 -258 -521 -500 -207 -807 -598 -073 -396 -280 -281 -268 -281 | 94937 81705 96693 56705 56705 56705 16697 04969 01922 00520 00031 00108 00789 01905 00520 00310 00108 00789 14927 | - 00735 - 02182 - 03579 - 04294 - 04709 - 04706 - 04702 - 02242 - 01261 - 00277 - 00555 - 01261 - 00277 - 00555 - 01261 - 00277 - 00555 - 01551 - 02402 - 04405 - 0 | 125 - 044 - 228 - 229 - 286 - 279 - 286 - 287 - 287 - 207 - 803 - 277 - 003 - 289 - | .94999 .81986 .67068 .57035 .47037 .57009 .27010 .17010 .00591 .00042 .00222 .00914 .22256 .03508 .66022 .10029 .2 | - 00737 - 02132 - 02135 - 04 272 - 04 272 - 04 273 - 04 274 - 04 224 - 02975 - 02 275 - 02 275 - 01 372 - 01 640 - 02 273 - 02 273 - 03 372 - 04 411 - 04 647 - 04 800 - 04 647 - 04 800 - 04 80 | 133 - 029 - 145 - 208 - 274 - 306 - 281 - 268 - 515 - 466 - 255 - 795 - 522 - 067 - 522 - 067 - 312 - 294 - 303 - 305 - 297 - 208 - 312 - 298 - 312 - 299 - 303 - 305 - 297 - 208 - 20 | .94987 .82223 .67216 .57230 .47223 .57235 .17242 .05017 .01999 .06611 .06895 .02012 .02016 .0611 .0019 .00213 .00895 .02012 .00895 | 00731 02125 03557 04261 04753 04491 04723 04491 02268 01055 |
| | SECTION | , | | SECTION | 6 | | SECTION | , | | | |
| NP | ×/L | 7/1 | CP | x/L | 1/1 | CP | X/L | 1/1 | CP | | |
| 15 14 13 12 11 10 9 8 7 6 5 5 4 4 4 4 3 9 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | 94977 84954 750015 64948 54943 54940 655016 60547 6015 | - 06731 - 01822 - 02851 - 0.7713 - 0.4814 - 0.4886 - 0.4081 - 0.4081 - 0.3625 - 0.2788 - 0.2786 - 0.3525 - 0.2786 - 0.3525 - 0.2786 - 0.3525 - 0.2786 - 0.3525 - 0.2787 - 0.2787 | .140 .027 .055 -119 -239 -256 -269 -275 -284 -614 -6114 -510 -249 -871 -711 -109 -071 -315 -316 -316 -316 -316 -316 -316 -316 -316 | .94053 .84036 .74065 .74065 .54255 .54992 .24997 .15016 .10019 .06521 .03999 .01985 .01985 .01995 .01299 .0 | - 00734 - 01823 - 02854 - 02714 - 04496 - 04645 - 04678 - 04678 - 04678 - 03524 - 03198 - 07499 - 03526 - 071851 - 02803 - 0749 - 03526 - 03527 - 0 | .133 .035 .041 -100 -149 -209 -219 -225 -219 -227 -23 .156 -253 .156 -257 -255 -469 -271 -315 -315 -457 -271 -271 -271 -205 -217 -205 -205 -205 -205 -205 -205 -205 -205 | 94 94 6 34 998 75 106 2 64 978 64 977 54 76 76 75 106 76 75 106 76 75 107 76 75 76 7 | - 007 35 - 018 21 - 028 50 - 037 15 - 04 398 - 04 879 - 04 645 - 04 076 - 33 627 - 32 200 - 028 13 - 022 56 - 013 13 - 02 256 - 013 13 - 02 256 - 013 13 - 02 256 - 013 13 - 02 256 - 013 13 - 02 277 - 03 53 27 - 03 53 27 - 04 514 - 04 645 - | .114 .034 .0310791251771912022772723154835241245954135245954135245954135245954135245954135245954135245956862472562672711902012012 | | |

TABLE B1-3

SECTION 2

TEST 2310

SECTION 4

.141
-012
-119
-179
-240
-246
-246
-257
-207
-205
-257
-270
-205
-257
-270
-405
-354
-356
-351
-366
-253
-189
-149
-1407
-146
-255
-189
-1407
-1468
-105

SECTION 3

MO = .7003 ALPHA = 1.08 REC = 11.74*10**6

SECTION 1

| NP | X/L | 1/1 | C.P. | X/L | 2/1 | CP | X/L | 2/1 | CP | X/L | 2/L |
|-----|------------------|---------|------------|------------------|--------|-------|------------------|----------|--------|------------------|----------------|
| 12 | .95030 | 00726 | .106 | .94937 | 00735 | .128 | .94999 | 00757 | .137 | .96987 | 00731 |
| 11 | .81597 | 02193 | 058 | .81705 | 02182 | 033 | . 81986 | 02152 | 021 | . 82223 | 62125 |
| 10 | . 66593 | 03587 | 150 | .66695 | 03579 | 134 | .67008 | 03553 | 128 | .67216 | 03537 |
| 9 | . 56588 | 04301 | 211 | .56705 | 04294 | 203 | .57033 | 04272 | 185 | .57230 | 04261 |
| 7 | - 36590 | 04889 | 261 | . 36 705 | 04769 | 249 | . 47037 | 04760 | 245 | .47223 | 04753 04391 |
| 6 | . 26579 | 04702 | 235 | . 26 705 | 04706 | 233 | .27010 | 04 716 | 230 | .27253 | 04723 |
| 5 | . 16594 | 74194 | 196 | . 16599 | 04202 | 224 | .17010 | 04224 | 202 | .17242 | 04235 |
| 4 | .04003 | 02971 | 232 | .04 909 | 02958 | 235 | .05016 | 02975 | 187 | .05617 | 02976 |
| 3 | .07002 | 02268 | 526 | .01922 | 02242 | 304 | .02010 | 02275 | 259 | .01999 | 02265 |
| 1 | .00034 | .00505 | .334 | .00520 | 01261 | .353 | .00591 | 31326 | . 596 | .00611 | 01555 |
| 34 | .00216 | .00902 | .517 | .00105 | .00553 | .467 | .00222 | .00317 | .404 | .00210 | .00000 |
| 33 | .00366 | .01592 | 064 | .03739 | .01531 | 175 | . 00914 | .01643 | 276 | .00893 | .01619 |
| 35 | .02037 | .02285 | 573 | .01906 | .02232 | 719 | . 02036 | .02273 | 939 | .02012 | .02276 |
| 31 | .03525 | .02701 | 538 | .03402 | .02674 | 619 | .03508 | .02698 | 691 | .03550 | .02701 |
| 29 | .09959 | .03617 | 358 | .05911 | .03113 | 409 | .05022 | .03128 | 456 | .06011 | .05127 |
| 28 | .15037 | .04080 | 287 | .14927 | .04071 | 333 | .15032 | .04 078 | 366 | .15024 | .04073 |
| 27 | .20044 | .04413 | 301 | . 19909 | .04405 | 351 | . 20029 | .04411 | 357 | . 20016 | .04410 |
| 56 | .25030 | .04647 | 305 | .25080 | .04649 | 342 | . 25024 | .04647 | 352 | .25021 | . 04647 |
| 25 | .35050 | .04870 | 311 | . 34925 | .04798 | 339 | . 30008 | -04800 | 354 | .30021 | .04799 |
| 23 | .40047 | .04886 | 329 | . 39931 | .04886 | 328 | . 35024 | .04879 | 350 | .35015 | .04879 |
| 2.5 | .45030 | .04912 | 321 | .44897 | .04815 | 314 | .45010 | .04813 | 324 | .45039 | .04813 |
| 21 | .50039 | .04648 | 305 | . 49927 | .04652 | 298 | .50024 | .04667 | 304 | .50020 | . 04669 |
| 50 | .55025 | .04394 | 272 | -54927 | .04398 | 260 | .55042 | .04392 | 255 | .55033 | .04375 |
| 19 | .65032 | .04075 | 247 | .59931 | .04083 | 224 | .65026 | .04073 | 214 | .60018 | .04073 |
| 17 | .71026 | .03219 | 169 | .70397 | .03259 | 137 | .71034 | .03215 | 172 | .65015 .70977 | .03711 |
| 16 | . 78026 | .02561 | 116 | .77912 | .02572 | - 081 | .78008 | .02563 | 069 | .78012 | .03562 |
| 15 | .85021 | .01814 | 038 | .84903 | .01826 | 007 | . 85 001 | .01815 | .007 | .85010 | .01315 |
| 14 | 98518 | .01021 | .056 | .91929 | .01032 | .053 | .92012 | .01023 | . 09 3 | .92035 | . 01023 |
| 13 | . 98518 | .00265 | .169 | .98387 | .00283 | .189 | . 98611 | .00251 | . 203 | .98498 | .00257 |
| | SECTION | 5 | | SECTION | 6 | | SECTION | , | | | |
| | | | | | | | | | | | |
| NP | x/L | 1/1 | CP | X/L | 5 1/L | CP | X/E | 1/1 | CP | | |
| 15 | .94977 | 00731 | . 140 | .94955 | 00734 | .127 | .94946 | 00735 | .161 | | |
| 14 | 34954 | 01822 | .029 | .84934 | 01823 | 031 | . 34 958 | 01821 | .027 | | |
| 13 | .75003 | 02951 | 052 | .74953 | 02854 | 038 | . 75002 | 32850 | 334 | | |
| 12 | .64088 | 03713 | 111 | .64990 | 03714 | 097 | . 64957 | 03715 | 079 | | |
| 11 | . 54995 | 04307 | 221 | .54955 | 04396 | 140 | .54967 | 04398 | 123 | | |
| | .35016 | 04880 | 228 | .34970 | 04880 | 199 | - 34973 | 04879 | 175 | | |
| | . 25012 | 04646 | 231 | . 26997 | 04645 | 218 | . 24976 | 04645 | 185 | | |
| 7 | .15054 | 04081 | 211 | . 15016 | 04078 | 224 | . 14996 | 64676 | 505 | | |
| 6 | .10029 | 03625 | 201 | .10017 | 03624 | 230 | .10039 | 03627 | 232 | | |
| 2 | .06550 | 03203 | 256 | .06521 | 02803 | 285 | .04025 | 02813 | 576 | | |
| 5 | .02030 | 02282 | 280 | .01985 | 02268 | - 314 | . 01985 | 02266 | 438 | | |
| 2 | .00527 | 01314 | . 391 | .00567 | 01305 | . 342 | .00578 | 01313 | .127 | | |
| 45 | .00057 | .00727 | .757 | .00068 | .00449 | .730 | .00050 | .00361 | . 671 | | |
| 44 | .00626 | .01361 | 106 110 | .00170 | .01365 | 082 | .00630 | .01368 | 185 | | |
| 43 | .01223 | -01873 | 547 | .01209 | .01851 | - 515 | .01265 | .01889 | 615 | | |
| 42 | .02006 | .92272 | 886 | .01983 | .05568 | - 040 | .02012 | .02277 | 935 | | |
| 41 | .02988 | .02571 | 816 | .02991 | .02584 | 805 | .02999 | .02583 | 932 | | |
| 39 | .07448 | .03322 | 434 | .07488 | .03329 | 460 | .07482 | .03327 | 361 | | |
| 38 | 09994 | .03621 | 400 | - 09991 | .03620 | 358 | .09990 | .03621 | 326 | | |
| 37 | . 13986 | .03005 | 380 | .13985 | -03994 | 338 | .13976 | -03995 | 276 | | |
| 36 | .17979 | .04515 | 346 | .17999 | .04272 | 301 | . 17991 | .04288 | 256 | | |
| 34 | 25944 | .04681 | 308 | .25976 | .04681 | - 766 | .25976 | .06632 | 559 | | |
| 33 | - 29998 | .04800 | 296 | . 29994 | .04799 | 256 | . 29986 | . 04 800 | 215 | | |
| 32 | . 33085 | .04 860 | 283 | . 34009 | .04869 | 244 | . 35979 | . 34 863 | 207 | | |
| 31 | . 37986 | .04897 | 276 | . 37 99 4 | .04891 | 234 | . 37976 | .04892 | 201 | | |
| 30 | 41950 | .04789 | 263 | 41988 | .04867 | 226 | .41988 | .04868 | 208 | | |
| 28 | 49960 | .04650 | 771 | .49794 | .04649 | 185 | . 49987 | .04649 | 161 | | |
| 27 | . 53959 | .04452 | 195 | .55988 | .04450 | 170 | .53975 | .04452 | 134 | | |
| 56 | -57941 | -04714 | 159 | .57991 | .04210 | 130 | .57985 | .04214 | 106 | | |
| 25 | .61987 | .03935 | | .61973 .65979 | .03939 | 107 | .61976 | .03940 | 087 | | |
| 24 | .69970 | .03637 | 106 | .69976 | .03308 | 087 | .69979 | .03303 | 350 | | |
| 55 | -73940 | .02940 | 050 | .73970 | .02946 | 040 | .7398C | .02946 | 030 | | |
| 21 | .77960 | .02567 | 027 | .77962 | .02567 | 012 | .77942 | .02570 | 010 | | |
| 19 | .81937 .85955 | .02157 | .013 | .81965 .85980 | .02154 | .054 | .81985 .85943 | .02150 | .016 | | |
| 18 | .89940 | .01745 | -088 | .89977 | .01241 | -036 | . 39961 | .01243 | .066 | | |
| 17 | -94727 | .00755 | -146 | . 94 861 | .00742 | .139 | . 94 95 9 | .00733 | .094 | | |
| 16 | . 95504 | .00266 | .204 | .93462 | .00272 | .188 | .98455 | .00274 | .124 | | |
| | | | | | | | | | | | |

TABLE B1-4

CP

.143
-007
-106
-161
-213
-210
-191
-141
-J85
-227
-161
-1.082
-585
-492
-413
-587
-587
-587
-587
-587
-510
-277
-240
-194
-109
-0419
-109

M6 WING - SUPFACE PRESSURE DISTRIBUTIONS

TEST 2311

MO = .7001 ALPHA = 2.06 REC = 11.74*10**6

| | SECTION | 1 | | SECTION | 2 | | SECTION | 5 | | SECTION | 4 |
|---|--|---|--|--|--|--|--|--|--|--|--|
| NP | ×/L | 2/1 | CP | x/L | 1/1 | CP | x/L | 1/1 | CP | X/L | 1/L |
| 12 11 10 9 8 7 6 5 4 3 3 2 1 3 4 3 3 2 2 3 1 3 2 2 3 1 2 2 2 3 1 3 1 2 2 3 1 3 1 | 95030 31597 -66593 -66593 -56583 -66599 -16594 -04993 -02059 -00102 -001 | - 00724 - 02193 - 02193 - 03587 - 04301 - 04775 - 04899 - 04762 - 04194 - 02971 - 02268 - 01513 - 00292 - 01592 - 02761 - 02761 - 02761 - 03617 - 04413 - 04647 - 04647 - 04647 - 0475 - 0471 - 04648 - 0475 - 0471 - 0475 - 0475 | 112 -045 -124 -124 -122 -212 -139 -150 -172 -444 -776 -418 -222 -770 -679 -451 -342 -342 -344 -346 -346 -346 -346 -346 -346 -346 | 94937 81705 816098 56705 56705 16699 01922 00051 00192 00052 00052 00031 00189 01905 03402 05911 09915 14927 19909 25080 25951 44927 59951 44927 59951 44927 59951 59951 64962 59951 64962 59951 64962 | - 00735 - 02182 - 02182 - 03579 - 04294 - 04769 - 04889 - 04262 - 02242 - 01255 - 01551 - 02252 - 02674 - 03113 - 03613 - 04671 - 0469 - 04798 - 04886 - 04886 - 04885 - 04885 - 04652 - 04 | 130 -0119 -1114 -175 -212 -202 -1118 -120 -481 -758 -378 -378 -378 -378 -401 -405 -580 -580 -580 -580 -580 -580 -580 -5 | .94999 .41986 .67068 .57058 .67037 .57050 .67016 .17010 .05016 .02016 .00591 .00042 .00222 .00914 .02036 .03508 .04037 .50008 .55024 .50029 .50024 .50037 .5016 .5024 .5036 .5024 .5037 .5016 .5024 .5037 .5016 .5024 .5026 .5024 .5037 .5016 .5024 .5026 .5024 .5037 .5016 .5024 .5026 .5026 .71334 .78068 .78068 .78068 .78068 .78068 .78068 .78068 | - 00 737 - 02 152 - 02 155 5 - 04 272 - 04 276 - 04 276 - 02 275 - 02 275 - 01 326 - 00 317 - 00 806 - 01 640 - 01 | . 140 -0112 -1111 -163 -213 -213 -213 -213 -213 -182 -1182 -136 -070 -070 -070 -070 -1521 -727 -490 -1521 -5579 -494 -435 -416 -579 -494 -596 -596 -596 -596 -596 -596 -596 -596 | .94937 .8225 .67216 .57216 .57231 .47220 .37235 .27235 .27235 .205017 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .550000 .550000 .550000 .550000 .550000 .550000 .550000 .550000 .5500000 .550000 .550000 .550000 .550000 .55000000 .5500000000 | - 00781 - 02125 - 03537 - 04257 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04725 - 04737 - 04737 - 04737 - 04737 - 04737 - 04410 - 0441 |
| | SECTION | 5 | | SECTION | 5 | | SECTION | 7 | | | |
| . ND | ×/1 | 1/1 | CP | x/L | 1/1 | CP | X/L | 1/1 | CP | | |
| 15 14 15 12 11 10 9 8 7 6 5 4 4 5 6 6 5 6 6 6 6 6 6 6 6 7 7 8 8 7 8 7 8 7 8 8 7 8 8 8 8 | 94977 \$4954 75901 64988 54993 54993 15016 25012 15054 10079 06550 04010 07294 07294 07294 07294 07294 17 | - G6721 - 01322 - 02951 - 02713 - 04197 - 04814 - 04646 - 04691 - 07625 - 02782 - 01114 - 07282 - 01146 - 04826 - 0 | . 159 . 031 . 047 - 102 . 198 - 197 - 1197 - 1197 - 1145 - 123 - 1120 - 1119 - 512 - 709 - 503 - 511 - 781 - 1. 159 - 656 - 516 - 439 - 639 - 735 - 518 - 71 | 94 95 8 84 934 84 936 84 94 95 84 993 84 993 84 993 83 993 84 993 85 95 95 95 95 95 95 95 95 95 95 95 95 95 | - 00734 - 01823 - 02854 - 03714 - 04814 - 04890 - 04645 - 04678 - 04678 - 04678 - 01926 - 01198 - 02803 - 01305 - 01449 - 011851 - 02803 - 01268 - 01305 - 01459 - 01851 - 02803 - 01851 - 02808 - 01851 - 02808 - 01851 - 02808 - 01851 - 02808 - 01851 - 02808 - 01851 - 02808 - 01851 - 02808 - 01851 - 02808 - 028 | . 122 . 027 . 039 . 096 . 193 . 181 . 190 . 179 . 108 . 106 . 106 . 106 . 106 . 107 . 129 . 1 102 . 107 . 108 . 10 | .94946 .84998 .75002 .64957 .54967 .44970 .34973 .24976 .10039 .06536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .0 | 00735 01821 02850 03715 04398 04879 04645 04676 05200 02813 02266 01313 02266 01313 02266 01313 02266 01313 02266 01316 00361 0036 | .085 .014 .042 .082 .119 .158 .105 .105 .105 .109 .1194 .209 .272 .247 .247 .247 .247 .247 .247 .247 | | |

TABLE B1-5

CP

. 138
- 002
- 141
- 184
- 173
- 141
- 078
- 019
- 103
- 666
- 075
- 685
- 1491
- 570
- 456
- 570
- 456
- 452
- 397
- 374
- 321
- 321
- 325
- 243
- 3153
- 243
- 323
- 323
- 324
- 321
- 323
- 324
- 321
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 323
- 32

MO = .6090 ALPHA = 3.06 REC = 11.74*10**6

| | SECTION | 1 | | SECTION | 2 | | SECTION | 3 | | SECTION | 4 |
|--|--|---|--|---|--|--|--|---|---|--|--|
| NP | x/L | 111 | CP | x/L | 1/1 | CP | X/L | 1/1 | CP | X/L | 2/1 |
| 12 11 10 9 8 7 6 5 4 5 2 2 1 3 4 5 5 2 2 2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 | . 950 SQ . 81597 . 66593 . 56594 . 66590 . 16590 . 16990 . 169900 . 16990 . 169900 . 169900 . 169900 . 169900 . 169900 . 169900 . 169900 . 169 | -,00726, -,02193, -,03587, -,04301, -,04773, -,04890, -,04762, -,02071, -,02268, -,02071, -,02268, -,01353, -,02268, -,01353, -,02268, -,01353, -,02761, -,01353, -,02761, -,01353, -,02761, -,03617, -,04080, -,04647, -,0 | -114 -031 -108 -155 -190 -170 -141 -080 -038 -021 -546 -737 -304 -398 -985 -855 -450 -403 -400 -597 -384 -384 -386 -770 -384 -370 -384 -370 -384 -370 -384 -370 -384 -370 -384 -370 -384 -377 -304 -272 -311 -176 -339 -306 -377 | . 94937 .81705 .66693 .56705 .46726 .36705 .26705 .16699 .01902 .00031 .00103 .00789 .01902 .00520 .00103 .00789 .01902 .05911 .14927 .19929 .29925 .34927 .44997 .44997 .54927 .54927 .77912 .64937 .77912 .64937 .77912 .64937 .77912 .64937 .77912 .64937 | 00735 02182 05579 04294 04769 04706 04202 02242 01261 00277 .00553 .02674 .03113 .02732 .02674 .03113 .04071 | .134011095150175159126093011037580703202560 -1.270 -1.354053468460434454454454598597562587006287006 | .94999 .81986 .67008 .57033 .47037 .37009 .27016 .05016 .00591 .00342 .60222 .60914 .62036 .035508 .06022 .10029 .15032 .20029 .25024 .40037 .45010 .55042 .60071 .65026 .71034 .78068 .85001 .72012 .93611 | 00757 02152 02155 04272 04272 04890 04716 04224 02975 01326 00317 00806 01643 02695 03128 03026 04677 04800 04873 0487 | .139 -003 -394 -140 -182 -183 -075 -075 -097 -600 -097 -600 -097 -1.401 -579 -499 -473 -443 -430 -413 -389 -386 -377 -2136 -389 -386 -377 -2136 -389 -389 -386 -377 -282 -1368 -014 | .94937 .82223 .67216 .57236 .47223 .17242 .05017 .00000 .00213 .00213 .00213 .00213 .03530 .06011 .10019 .15024 .25021 .35015 .39977 .45039 .56033 .60016 .60018 .6 | -, 007 s1 -, 02125 -, 03537 -, 04261 -, 04753 -, 04891 -, 04278 -, 02268 -, 01355 -, 00000 -, 00787 -, 01619 -, 02276 -, 02707 -, 03625 -, 04078 -, 0478 -, 0479 -, 04879 -, 0487 |
| NP | SECTION | 5 | CP | SECTION | | | SECTION | | | | |
| | | | | X/L | 2/L | CP | X/L | 2/L | CP | | |
| 154 1132 111 100 9 8 7 6 5 5 2 1 1 4 5 6 4 4 4 3 2 4 1 4 4 3 2 4 4 4 4 3 2 4 4 1 4 3 9 3 7 8 5 5 2 2 5 3 1 1 2 0 9 2 8 2 7 2 2 6 2 7 2 2 7 2 2 7 2 7 2 6 6 7 1 7 1 6 1 7 1 7 1 6 | 94077 #4954 #50013 64943 64943 64943 15016 15016 15016 100547 100184 100647 100184 100744 100904 11396 11 | - 00731 - 01822 - 02851 - 04797 - 04897 - 04886 - 24646 - 32622 - 037282 - 037282 - 037282 - 03736 - 03272 - 03736 - 03272 - 03736 - 03272 - 03736 - 03728 - 04897 - 04897 | . 150 . 028 - 044 - 095 - 180 - 178 - 172 - 149 - 092 - 050 - 001 - 002 - 667 - 602 - 441 - 500 - 983 - 1.689 - 1.699 - 573 - 599 - 517 - 302 - 294 - 108 - 108 | 94953 84934 74995 54995 34993 24997 15315 03999 61985 03999 0195 03991 04972 07488 09991 13983 17999 22010 23994 34994 34994 34994 34994 34994 34994 34994 34997 3 | - 00734 - 01823 - 02854 - 03714 - 037914 - 04896 - 04886 - 04078 - 03198 - 02268 - 01305 - 02268 - 01365 - 01365 - 02268 - 01365 - 02268 - 02584 - 02784 - 02784 - 02784 - 02784 - 02784 - 02782 | -114 -023 -041 -197 -117 -165 -165 -165 -108 -075 -065 -155 -165 -156 -156 -156 -156 -156 -1 | 94946 84998 75002 64997 75002 64997 64970 10039 100396 100396 10030 10193 10063C 11265 102012 102999 13976 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13976 14988 13977 15978 1 | 00.735 01821 02850 03715 04.818 04.879 04.8475 04.6475 03.6200 02813 02266 01313 02266 01313 02266 01313 02583 00361 00757 01368 01362 04.808 | . JOS J. | | |

MO = .7009 ALPHA = 4.08 REC = 11.77*10**6

| | SECTION | 1 | | SECTION | 5 | | SECTION | 3 | | SECTION | 4 | |
|-----|----------|---------|--------|----------|---------|--------|----------|----------|---------|----------|---------|--------|
| NP | X/L | 2/1 | CP | X/L | 2/1 | CP | X/L | 2/1 | CP | X/L | 2/1 | CP |
| 12 | .95030 | 00726 | .112 | .94937 | 00735 | .131 | . 94 999 | 06737 | . 133 | .94937 | 03731 | .153 |
| 11 | .81597 | 02193 | 025 | .81765 | 02182 | 004 | .81986 | 02152 | 002 | . 82223 | 02125 | 002 |
| 10 | . 56593 | 03587 | 091 | .66698 | 03579 | 375 | . 67008 | 03553 | 080 | .67216 | 03537 | 085 |
| 9 | . 56598 | 04301 | 131 | .56735 | 04294 | 126 | .57033 | 04272 | 118 | .57250 | 04261 | 124 |
| 9 | . 46599 | 04773 | 165 | .46736 | 04769 | 146 | . 47337 | 04760 | 153 | .47220 | 04755 | 161 |
| 7 | . 36590 | 04889 | 136 | . 36705 | 04889 | 124 | . 37009 | 04890 | 145 | . 37255 | 04891 | 139 |
| 6 | . 26579 | 04707 | 102 | .26705 | 04706 | 083 | . 27010 | 04716 | 085 | . 27 250 | 04725 | 396 |
| 5 | .16594 | 04194 | 029 | .16697 | 04202 | 039 | .17010 | 04224 | 316 | .17242 | 04238 | 321 |
| 4 | .04995 | 02971 | .049 | .04939 | 02958 | .081 | . 05016 | 02975 | . 136 | . 05017 | 52974 | .116 |
| 3 | .05005 | 02269 | .116 | .01922 | 02242 | .179 | .02010 | 02275 | . 235 | .01999 | 02268 | . 243 |
| 2 | .00593 | 01333 | .628 | .00523 | 01261 | .661 | -00591 | 01326 | .695 | .00611 | 01355 | . 589 |
| 1 | . 000 54 | .00292 | . 675 | .00031 | .00277 | .630 | - 00042 | .00317 | .572 | .00000 | . 00000 | . 587 |
| 54 | .00216 | .00802 | .178 | .00103 | .00553 | .053 | .00222 | .00806 | 057 | .00210 | .00787 | 377 |
| 55 | .00966 | .01592 | 567 | .00789 | .01531 | 741 | .00914 | .01640 | 866 | .00893 | .01619 | 355 |
| 32 | .02037 | .02285 | -1.177 | .01906 | .02252 | -1.440 | .02036 | .02273 | -1.574 | .02012 | .02276 | -1.654 |
| 31 | .03525 | .02701 | -1.338 | .03402 | .02674 | -1.730 | .03508 | .02698 | -1. 364 | .03530 | 16150. | -1.498 |
| 30 | .06036 | . 03130 | 664 | .05911 | .05113 | 698 | .06022 | .03123 | -1.103 | .06011 | .03127 | -1.354 |
| 29 | .09959 | .03617 | 539 | .09913 | .03613 | 613 | . 10029 | .03626 | 636 | .10019 | . 03623 | 600 |
| 23 | . 15037 | .04686 | 471 | .14927 | .04071 | 535 | . 15032 | .04078 | 564 | . 15024 | . 04073 | 548 |
| 27 | . 20044 | .04413 | 455 | . 19909 | .04405 | 524 | . 20029 | .04411 | 524 | .20016 | . 04410 | 501 |
| 26 | .25039 | .04647 | 439 | . 25083 | .04649 | 487 | . 25324 | . 34647 | 489 | .25021 | .04647 | 455 |
| 25 | . 30050 | .04800 | 432 | . 29925 | . 04798 | 465 | . 50008 | .04800 | 466 | . 30621 | .04799 | 422 |
| 24 | . 35050 | .04879 | 426 | . 34927 | .04878 | 454 | - 35024 | . 34879 | 443 | . 35015 | .04879 | 430 |
| 23 | .40047 | .04886 | 423 | . 39931 | .04886 | 427 | -40037 | .04886 | 414 | .39977 | .04885 | 562 |
| 5.5 | .45030 | .04812 | 406 | .44397 | .04815 | 388 | -45010 | .04813 | 582 | .45039 | . 04815 | 554 |
| 21 | . 500 39 | .04648 | 371 | .49927 | .04652 | 359 | .50024 | .04647 | 548 | .50020 | 4648 | 294 |
| 20 | . 55925 | -04394 | 327 | .54927 | .04398 | 308 | - 55042 | . 04 392 | 286 | .55033 | . 64393 | 251 |
| 19 | .60029 | .04075 | 289 | . 59931 | .04083 | 260 | -60071 | .04073 | 235 | .60018 | .04078 | 199 |
| 19 | .65032 | .07711 | 244 | .64917 | .03719 | 215 | -65026 | .03711 | 185 | .65015 | .03711 | 153 |
| 17 | .71026 | .03219 | 193 | .73397 | .03229 | 153 | -71034 | .03218 | 135 | .70977 | .03222 | 106 |
| 16 | . 78026 | .02561 | 130 | .77912 | .02572 | 084 | .780C8 | .02563 | 363 | .78012 | . 02562 | 039 |
| 15 | .85021 | .01814 | 042 | .84903 | .01826 | 002 | .85001 | .01815 | .020 | .85013 | .01815 | .030 |
| 14 | .92027 | .01021 | .059 | .91927 | .01032 | .094 | .92012 | .01023 | .100 | .920.5 | . 01023 | .113 |
| 13 | .98518 | .00265 | .176 | .98 58 7 | .00283 | .191 | - 98611 | .00251 | .198 | .98498 | .00267 | . 192 |

| | SECTION | 5 | | SECTION | 6 | | SECTION | 1 | |
|------|----------|---------|--------|---------|---------|--------|----------|---------|--------|
| NP | ×/L | 1/1 | CP | X/L | 1/1 | CP | x/L | 1/1 | CP |
| 15 | .94977 | 00731 | .122 | .9495 | 60734 | .101 | . 74945 | 00735 | .042 |
| 14 | . 84954 | 01922 | .024 | .84934 | 01823 | .011 | . 84 958 | 01821 | 025 |
| 13 | .75005 | 02951 | 044 | .74965 | 02854 | 048 | .75002 | 02850 | 072 |
| 12 | . 64933 | 03713 | 092 | .64983 | 03714 | 098 | . 64957 | 03715 | 105 |
| 11 | .54983 | 74 597 | 165 | .54955 | 04396 | 126 | . 54967 | 04393 | 132 |
| 10 | -44990 | 04 214 | 162 | .44999 | 04814 | 164 | . 44970 | 04815 | 157 |
| 9 | . 35016 | 04990 | 147 | . 34990 | 04880 | 151 | . 54973 | 04879 | 155 |
| 8 | . 25312 | 74646 | 116 | . 24997 | 04645 | 145 | . 24976 | 04645 | 143 |
| 7 | .15054 | 04681 | 033 | .15016 | 04678 | 103. | .14996 | 04076 | 142 |
| 6 | .10029 | 03625 | .018 | .10019 | 03624 | 056 | . 10039 | 03627 | 136 |
| 5 | .06550 | 03203 | . 102 | .06521 | 03198 | 002 | .06536 | 03200 | 121 |
| 4 | .04039 | 02788 | .101 | .03999 | 02803 | .036 | . 04025 | 02813 | 107 |
| 3 | .02030 | 02282 | . 206 | .01985 | 02268 | .151 | . 01785 | 02266 | .005 |
| 2 | .00597 | 01314 | .672 | .00567 | 01305 | .626 | .00578 | 01315 | . 463 |
| 1 | .00757 | .00179 | . 554 | .00053 | .00449 | .528 | - 00050 | .00361 | . 497 |
| 45 | .00194 | .00727 | 673 | .00193 | .00749 | 136 | .00193 | .00757 | 120 |
| 44 | .00525 | .01'61 | 673 | . 00623 | . 31365 | 598 | . 03636 | .01 568 | 694 |
| 45 | .01228 | .01873 | -1.142 | .01209 | .31851 | -1.148 | .01265 | .01889 | -1.184 |
| 42 | .02006 | .72272 | -1.644 | .01983 | 89220. | -1.608 | . 02012 | .02277 | -1.620 |
| 41 | .02983 | .02581 | -1.874 | .02991 | .02584 | -1.816 | . 32999 | .02583 | -1.612 |
| 40 | .04955 | .07966 | -1.740 | .04972 | .02967 | -1.422 | .04995 | .02970 | 917 |
| 59 | .07443 | .03322 | 652 | .07483 | .05329 | 652 | . 07482 | .03327 | 539 |
| 58 | .09994 | . 7*421 | 569 | . 09991 | .03620 | 517 | .09990 | .03621 | 426 |
| 57 | .13986 | .03995 | 523 | .13983 | . 33994 | 430 | .13976 | . 33995 | 563 |
| 56 | .17979 | .04296 | 461 | .17999 | .04272 | 578 | . 17991 | .04288 | 550 |
| 35 | . 22001 | .04515 | 421 | .22010 | .04514 | 350 | . 21990 | .04514 | 508 |
| 54 | . 25954 | .74681 | 385 | . 25995 | . 34681 | 324 | . 25976 | .04632 | 295 |
| 33 | . 29999 | .04 200 | 361 | . 29994 | .04799 | 308 | . 29986 | .04800 | 278 |
| 32 | . \$5985 | .04960 | 555 | .34003 | .04869 | 288 | . 33979 | .04868 | 265 |
| 31 | . 37986 | .04992 | 315 | . 37994 | .04891 | 275 | . 37976 | .04892 | 252 |
| 30 | .41959 | .04967 | 296 | .41983 | .04867 | 258 | .41988 | .04868 | 259 |
| 29 | .45975 | .94789 | 283 | .45975 | .04790 | 243 | .45976 | .04787 | 233 |
| 85 | .49960 | .04650 | 241 | . 49994 | .04649 | 207 | .49987 | .04049 | 217 |
| 27 | .55959 | .04452 | 210 | .53988 | . 04450 | 189 | . 53975 | .04452 | 199 |
| 26 | .57961 | .04214 | 169 | .57991 | .04210 | 147 | . 57985 | .04214 | 182 |
| 25 | .61987 | .01918 | 145 | .61970 | .03939 | 124 | . 51976 | .03940 | 180 |
| 24 | .65769 | .01637 | 110 | .65979 | .03635 | 102 | . 65966 | .03636 | 183 |
| 25 | .69270 | .03308 | 085 | .69976 | .03308 | 072 | . 69979 | .03308 | 193 |
| . 22 | . 75940 | .02949 | 057 | .73973 | .02946 | 054 | .73780 | .32946 | 215 |
| 21 | .77960 | .02567 | 024 | .77962 | .32567 | 027 | .77942 | .02570 | 252 |
| 20 | . 31937 | .02157 | .016 | .81765 | . 32154 | .004 | . 31985 | .02150 | 505 |
| 19 | . 45955 | .01709 | .052 | .85980 | .01707 | .033 | . 35943 | .01712 | 541 |
| 18 | . 89940 | .01246 | .089 | .39777 | . 31241 | .060 | . 39961 | .01243 | 565 |
| 17 | -94727 | .00755 | . 140 | .94361 | . 00742 | .103 | . 94959 | .00733 | 570 |
| 16 | .99506 | .00266 | . 196 | .98462 | .60272 | .156 | . 98455 | .30274 | 276 |

TABLE B1-7

E P

. 150 . 000 . 007 . 017 . 142 . 112 . 059 . 030 . 350 . 741 . 495 . 207 . 1. 780 . 2. 356 . 741 . 495 . 207 . 1. 780 . 2. 356 . 741 . 495 . 207 . 207 . 356 . 356 . 441 . 457

MO = .7019 ALPHA = 5.06 REC = 11.66410446

| | SECTION | 1 | | SECTION 2 | | | SECTION 3 | | SECTION 4 | | |
|---|---|---|--|---|--|--|---|--|--|---------|---------|
| NP | X/L | 111 | CP | X/L | 1/1 | CP | X/L | 111 | CP | x/L | 1/1 |
| 12 | .95010 | 00726 | .108 | . 94 93 7 | 00735 | .127 | . 94999 | 00737 | . 130 | .94937 | 00731 |
| 10 | .56595 | 02193 | 015 | .81705 .68698 | 02182 | 001 | .81986 | 02152 | 369 | .82223 | 02125 |
| 9 | .56588 | 04301 | 107 | . 56705 | 04294 | 108 | .57033 | 04272 | 099 | .57230 | 64261 |
| 3, | .46599 .36530 | 04889 | 133 | .46706 | 04769 | 118 | . 47 337 | 04760 | 124 | .47223 | 04753 |
| 6 | .26579 | 04702 | 059 | . 26705 | 04706 | 338 | . 27010 | 04715 | 041 | .27230 | 34723 |
| 5 | .16594 | 04194 | .018 | .16699 | 04202 | .176 | .17010 | 04224 | .041 | .17242 | 04233 |
| 3 | .05305 | 02268 | .237 | .01922 | 02242 | .295 | .02010 | 02275 | .350 | .01999 | 02268 |
| 2 | .00595 | 01333 | .693 | .00520 | 01261 | .725 | .00591 | 31326 | .480 | .00611 | 01355 |
| 54 | .00216 | .0000 | .037 | . 63163 | .00553 | 076 | .00222 | .00806 | 196 | .00213 | .03787 |
| 33 | .00346 | .01592 | -1.343 | .01936 | .01531 | 893 | .02036 | .01040 | -1.096 | .02612 | .01619 |
| 51 | .03525 | -02701 | -1.755 | .03402 | .02074 | -1.877 | . 03508 | .02698 | - 2.002 | .03550 | .02731 |
| 29 | .06036 | .03130 | 725 | .05911 | .03113 | -1.450 | .06022 | .03128 | -1.390 | .06011 | .03127 |
| 28 | .15937 | .04080 | 546 | . 14927 | .04071 | 588 | . 15032 | .04079 | 586 | . 15624 | .04078 |
| 27 | .20344 | .04413 | 507 | .19909 | .04405 | 572 | .20029 | .04647 | 560 517 | .20016 | .04410 |
| 25 | .30050 | .04800 | 464 | - 29925 | .04798 | 500 | . 30008 | .04800 | 491 | . 30021 | .34779 |
| 24 | . 35050 | .04879 | 456 | .34927 | .04878 | 470 | . 35024 | .04879 | 462 | .35015 | .04879 |
| 22 | .45010 | .04812 | 427 | . 44 39 7 | .04815 | 404 | .45010 | .04813 | 395 | .45039 | . 04313 |
| 21 | .50039 | .04648 | 386 | .49927 | .04652 | 371 | .50024 | .04649 | 350 | .55033 | .04648 |
| 19 | -60029 | .04075 | 299 | .59931 | .04083 | 265 | .60071 | .04073 | 241 | .60018 | .04078 |
| 19 | .65032 | .03711 | 247 | .64917 | .03719 | 217 | . 05026 | .03711 | 184 | .65015 | .03711 |
| 16 | .78926 | .02561 | 130 | .77912 | .02572 | 084 | . 78008 | .02563 | 061 | . 78012 | . 02562 |
| 15 | .85021 | .01814 | 041 | .84903 | .01826 | 000 | .35001 | .01815 | .021 | .85010 | .01815 |
| 13 | .98513 | .00265 | .171 | .98587 | .00283 | .186 | .98611 | 20251 | .194 | .98473 | .00257 |
| | SECTION | 5 | | SECTION | ٥ | | SECTION | , | | | |
| | 1/1 | 7/1 | CP | X/L | 1/1 | CP | ×/L | 1/1 | CP | | |
| NP | X/L | //1 | | | | | | | | | |
| 15 | .94977 | 007*1 | .113 | .94953 | 00734 | .085 | .94946 | 00735 | .017 | | |
| | .94977 .84954 .75003 | 00771 01822 02951 | .113 .019 | .94953 .84934 .74963 | 00734 01823 02854 | .002 | .94946 | 00735 01821 | 048 | | |
| 15 14 13 12 | .94977 .84954 .75003 | 00771 01822 02851 03715 | .113 .019 045 086 | .94953 .84934 .74965 | 00734 01823 02854 03714 | 057 097 | .94946 .34958 .75002 .64957 | 00735 01821 02850 03715 | 048 095 118 | | |
| 15 14 13 12 11 | .94977 .84954 .75003 .64989 .54991 | 007*1 01822 02*51 02*713 04*97 04814 | .113 .019 045 086 148 147 | .94953 .84934 .74965 .64980 .54955 | 00734 01823 02854 03714 04396 04814 | .002 057 097 124 157 | .94946 .34958 .75062 .64957 .54967 | 00735 01821 02850 03715 04398 04816 | 048 095 118 141 162 | | |
| 15 14 13 12 | .94977 .84954 .75005 .64989 .54981 .44990 | 007*1 01822 02851 02851 04797 04814 04880 | .113 .019 045 086 148 147 | .94953 .84934 .74963 .64985 .44998 | 00734 01823 02854 03714 04396 04880 | .002 057 097 124 157 | .94946 .34958 .75062 .64957 .54967 .44970 | 00735 01821 02850 03715 04398 04816 34879 | 048 095 118 141 162 156 | | |
| 15 14 13 12 11 | .94977 .84954 .75003 .64989 .54981 .44990 .35016 .25012 | 007*1 -01822 -02851 -03713 -04*97 -04814 -04880 -04681 | .113 .019 045 586 148 147 123 083 | -94953 -84934 -74963 -64980 -54955 -44998 -34992 -24997 -15015 | 00734 -01823 02854 03714 04396 04814 04880 04645 04678 | .002 057 097 124 157 | .94946 .34958 .75002 .64957 .54967 .44970 .34973 .24976 | 00735 01821 02850 03715 04398 04816 04879 04645 04676 | -, 048 -, 095 -, 118 -, 141 -, 162 -, 156 -, 142 -, 120 | | |
| 15 14 13 12 11 | .94977 .84954 .75003 .64988 .54981 .44990 .35016 .25012 .15054 | 00771 01822 02851 03713 04814 04880 04646 04081 | .113 .019 -045 -086 -148 -147 -123 -083 .011 | .94953 .84934 .74965 .64980 .54955 .46998 .34992 .24997 .15015 | 00734 01823 02854 03714 04374 04880 04645 04678 | .002 057 097 124 157 140 129 070 | .94946 .34958 .75002 .64957 .54967 .34973 .24976 .16996 | 00735 01821 02850 03715 04398 04816 34879 04645 04076 | 048 095 118 141 162 156 142 120 114 | | |
| 15 14 13 12 11 10 9 8 7 | .94977 .84954 .75903 .64988 .54983 .44990 .55016 .25012 .15054 .10029 .06550 .04030 | - 007/1 - 01822 - 02851 - 03715 - 0497 - 04814 - 04280 - 04646 - 04681 - 03625 - 03203 - 02788 | .113 .019 045 045 148 147 125 083 .011 .076 .184 | .94953 .84934 .74965 .64980 .54955 .44998 .34997 .15015 .10019 .06521 .03999 | 00734 01825 02854 03714 04396 04880 04645 04678 03624 03198 02803 | .002 057 197 124 157 140 129 070 007 .059 | .94946 .84958 .75002 .64957 .54967 .44970 .34973 .24976 .14996 .10039 .06536 | - 00735 - 01821 - 02850 - 03715 - 04398 - 04816 - 34879 - 04645 - 04076 - 03627 - 03200 - 02813 | 048 095 118 141 162 156 142 120 114 085 040 | | |
| 15 14 13 12 11 10 9 8 7 | .94977 .84954 .75003 .64983 .54983 .44990 .55016 .25012 .15054 .10029 .06550 .04030 .2036 | - 007*1 - 01822 - 02*51 - 02*71 - 02*71 - 04*97 - 04*80 - 04646 - 04681 - 03625 - 03203 - 02788 - 02788 | .113 .019 045 086 148 147 125 083 .011 .076 .184 .185 | .94953 .84934 .74963 .64980 .54958 .34990 .24997 .15015 .10019 .06521 .053999 | 00734 01823 02854 03714 04596 04880 04645 04678 03198 02803 02268 | .002 057 057 124 157 140 129 070 007 .059 .108 | .94946 .84958 .75002 .64957 .54967 .44970 .34976 .14996 .10039 .06536 .04025 | 00735 01821 02850 03715 04 398 04816 04879 04645 04076 03627 03200 02813 32266 | 048 095 118 141 162 156 142 120 114 083 040 .098 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 3 2 | .94977 .84954 .75003 .64983 .44990 .55012 .15054 .10029 .06550 .04030 .02030 .005.97 | - 0071 - 01822 - 02251 - 02715 - 04497 - 04816 - 04646 - 04646 - 04680 - 03625 - 03203 - 02788 - 0222 - 01314 | .113 .019 045 086 148 147 125 083 .011 .076 .184 .185 | . 94953 .84934 .74965 .64980 .54955 .44992 .24997 .15015 .10017 .06521 .03567 .00367 | 00734 01823 02854 03714 04396 04645 04645 04678 03198 02803 02803 02868 01305 | .002 057 097 124 157 140 129 070 007 .059 .108 .252 .639 | 94946 34958 75002 64957 54967 44970 34973 24976 14996 110039 06536 04025 01985 00056 | 00735 01821 02850 03715 04398 04816 34879 04645 04076 035027 03200 02813 0286 01513 | 048 095 118 141 162 156 142 120 114 083 044 098 557 413 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 3 2 | 94977 84954 75803 64983 44990 55012 15054 10029 06550 04030 20057 00057 | - 007*1 - 01822 - 02851 - 02755 - 04*97 - 04814 - 04646 - 04681 - 35625 - 03203 - 02788 - 02282 - 01314 - 00779 | .113 .019 045 586 148 147 125 083 .011 .076 .184 .185 .111 .718 .465 | .94953 .84934 .74965 .64985 .54955 .44998 .54997 .15015 .10019 .06521 .03999 .01985 .00567 | 00734 01823 02854 03714 04596 04684 04645 04678 04645 0478 03624 03198 02803 02803 02803 04449 0449 | .002 -057 -097 -124 -157 -140 -129 -070 -007 -059 -108 -252 -659 -444 -251 | . 94946 .34958 .75002 .64957 .54967 .44970 .34973 .24976 .10039 .06556 .04025 .01985 .00050 | 00755 01821 02850 03715 04 598 04816 04879 04076 03627 03627 02813 022813 022813 | -, 048 -, 095 -, 118 -, 1141 -, 162 -, 156 -, 142 -, 120 -, 114 -, 083 -, 040 -, 098 -, 557 -, 413 -, 259 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 94977 84954 75905 64983 54983 44990 55016 25012 15054 10029 06550 04030 02030 02030 00057 00057 | - 007*1 - 01822 - 02851 - 02751 - 04*97 - 04814 - 04864 - 04646 - 04681 - 03625 - 03720 - 02788 - 02282 - 01314 - 00379 - 00379 - 00379 - 00379 - 00379 - 00379 | .113 .019 045 086 148 147 125 083 .011 .076 .184 .185 .181 .718 .465 242 241 | . 94953 . 84934 . 74965 . 64980 . 54958 . 54992 . 24997 . 15015 . 10017 . 06521 . 03999 . 01985 . 00567 . 00063 . 00170 . 000625 | 00734 01823 02854 03714 04890 048814 04880 04645 04678 03198 02803 02268 01305 04449 03198 0749 01365 | .002 -057 -157 -124 -157 -140 -129 -070 -007 -059 -108 -252 -559 -284 -251 | . 94946 .34958 .75002 .64957 .54967 .54976 .54973 .24976 .14996 .10039 .06556 .04025 .01985 .00578 .00050 .00193 .06556 .0193 | 00755 01821 02850 03715 04 398 04816 04645 04076 03627 03627 03200 02813 0266 01313 .00361 .00361 .00361 .00361 | 048 095 118 141 162 156 142 120 114 083 040 .398 .557 .413 259 825 1313 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 94977 84954 75005 64983 54983 44990 55016 25012 15054 10029 06550 04030 02030 00057 00184 90626 01228 | - 007/1 - 01822 - 02851 - 07715 - 04814 - 04880 - 04686 - 04681 - 03625 - 03205 - 03205 - 03205 - 03205 - 03205 - 03205 - 03205 - 03314 - 06379 - 0727 - 01361 - 03272 - 03316 - 03272 - 03316 - 03272 - 03316 - 03272 - 03272 - 03272 - 03272 - 03272 - 03272 | .113 .019 045 086 148 147 123 .011 .076 .184 .111 .718 .655 842 441 289 | . 94953 . 84954 . 74963 . 64980 . 54958 . 54992 . 24997 . 15015 . 10019 . 06521 . 00599 . 01985 . 00063 . 00170 . 000625 . 01209 | 00734 01823 02854 03714 04596 04685 04685 04675 05198 02685 02685 01305 0449 0749 | .002 -057 -157 -124 -157 -140 -129 -070 -007 -059 -108 -252 -559 -444 -251 -184 -1725 -1892 | . 94946 .34958 .75002 .64957 .54967 .34973 .24976 .14996 .10039 .06556 .01985 .00578 .00505 .00193 .00556 .00193 .00556 .00193 | 00735 01821 02850 03715 04 398 04 816 04 645 04 6076 03 627 03 200 02813 02266 01313 .00361 .00757 .01368 .01368 .01368 .01368 .01368 | -, 048 -, 095 -, 118 -, 162 -, 156 -, 162 -, 1162 -, 1162 -, 1162 -, 1162 -, 1162 -, 1163 -, 044 -, 098 -, 597 -, 413 -, 259 -, 825 -, 1313 -, 1703 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 94977 84954 75003 64983 54983 54987 44990 55012 15054 10029 06550 04030 02030 00087 90087 | - 0071 - 01822 - 02251 - 02713 - 04497 - 04814 - 04880 - 04081 - 03625 - 0303 - 02788 - 02282 - 01314 - 00727 - 01373 - 02727 - 01373 - 02727 - 02781 | .113 .019 045 086 148 147 123 083 .011 .076 .184 .185 .511 .465 842 841 1289 1766 1999 | . 94953 84954 74963 64980 54958 54958 54997 15015 10019 06521 06521 00195 00195 00195 00125 01299 01295 | - 00734 - 01823 - 02854 - 03714 - 04596 - 048814 - 04645 - 04678 - 035024 - 035024 - 03198 - 02268 - 01305 - 0449 - 0749 - 0749 - 0749 - 0785 - 0785 - 02268 - 01851 - 02268 - 02688 - 0268 | .002 -057 -197 -124 -157 -140 -129 -007 -059 -108 -252 -559 -444 -251 -784 -1.267 -1.725 -1.643 | . 94946 .34958 .75062 .64957 .54967 .34976 .14996 .10039 .06556 .04025 .00056 .00198 .00056 .00198 .00056 .00198 .00126 .00126 .00126 .00126 .00126 .00126 .00126 .00126 .00126 .00126 .00126 | 00755 01821 02850 03715 04398 04816 04876 04645 04076 03627 03206 01313 02815 02815 02815 02815 02815 01368 0136 | 048 095 118 162 156 152 114 083 040 098 557 413 259 825 -1.703 -1.753 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 | 94977 94954 75905 64983 54983 54983 55912 75916 7695 | - 00711 - 01822 - 02251 - 02755 - 04814 - 04880 - 04686 - 04681 - 03625 - 03208 - 02282 - 01314 - 00379 - 01361 - 01473 - 02722 - 01361 - 01473 - 02728 | .113 .019 .045 .045 .146 .147 .23 .011 .076 .184 .185 .111 .418 .665 .242 .241 .1.289 .1.766 .1.999 .1.891 .1.267 | . 94953 . 84934 . 74965 . 64980 . 54958 . 54992 . 24997 . 15015 . 10019 . 06521 . 03999 . 01985 . 01025 . 01025 . 01025 . 01229 . 01985 . 01229 . 01985 | - 90734 - 91825 - 92854 - 93714 - 94816 - 94880 - 944845 - 94486 - 94678 - 93524 - 93198 - 9268 - 9268 - 94678 - 94803 - 94678 - 94 | .002 -057 -197 -124 -157 -140 -129 -070 -097 -08 -252 -559 -444 -251 -784 -1.267 -1.725 -1.643 -1.017 -220 | . 94946 34998 75062 64957 54967 44970 .34973 .24976 .10039 .06556 .00578 .00050 .00193 .01655 .01765 .01765 .01765 .02012 | 00755 01821 02850 03715 04 398 04 816 04 879 04 645 04 645 03 627 03 200 02815 02815 02815 02675 00757 01368 01368 01368 02583 | 048 095 118 162 156 162 114 083 040 098 557 413 259 825 -1.703 -1.753 -1.753 -1.154 305 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | .94927 .8494 .75903 .6494 .5494 .44990 .5501a .7501 | - 007/1 - 01822 - 02251 - 07715 - 04814 - 04816 - 04686 - 04686 - 04681 - 03625 - 03205 - 03205 - 03114 - 00379 - 011561 - 011873 - 0272 - 011561 - 0272 - 01561 - 0272 - 03561 - 0356 | .113 .019 .045 .045 .186 .147 -123 .011 .076 .184 .185 .111 .418 .665 .242 .241 .1.289 -1.766 -1.999 -1.891 -1.267 .762 .556 | . 94953 84934 64986 64985 44998 54997 -15015 -10017 -66521 -00198 | - 00734 - 01825 - 02854 - 03714 - 04896 - 04686 - 04678 - 04678 - 03198 - 0268 - 026 | .002 -037 -197 -124 -157 -140 -107 -007 -008 -252 -559 -444 -251 -784 -1.267 -1.725 -1.643 -1.207 -1.725 -1.643 -1.207 -1.720 -1 | . 94946 34998 75062 64957 54967 44970 34973 24976 110359 06536 00578 000578 00050 00193 01655 02019 02099 04995 07788 09996 | 00755 01821 02850 03715 04816 04817 04676 04676 03620 02813 0266 01313 01313 01313 01362 0 | 048 095 118 141 162 156 142 120 114 083 040 .398 .557 .413 259 825 1,313 -1,703 -1,154 805 557 409 | | |
| 15 14 13 12 11 10 9 8 7 65 4 4 4 3 2 1 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | 94977 3494 75903 6494 7499 74499 75914 7499 75914 7697 7697 7697 7697 7697 7697 7697 769 | - 007/1 - 01822 - 02251 - 07715 - 04814 - 04816 - 04646 - 04681 - 03625 - 03203 - 03788 - 04282 - 01314 - 00379 - 01314 - 01561 - 0272 - 01351 - 0272 - 0352 - 0352 | .113 .019 .045 .045 .146 .147 .123 .011 .076 .184 .185 .111 .418 .665 .242 .241 .1.289 .1.766 .1.999 .1.891 .1.267 .762 .556 .1.47 | . 94953 84934 64986 54995 54995 14096 14097 15015 10017 66521 10017 100083 00175 000825 01285 01285 01285 01785 01 | - 00734 - 01823 - 02854 - 03714 - 04816 - 04846 - 04445 - 04478 - 03624 - 03198 - 02683 - 02683 - 02584 - 02749 - 01365 - 02685 - 0 | . 002 -037 -1097 -1124 -1157 -140 -1070 -007 -009 -108 -252 -559 -444 -251 -784 -1267 -1725 -1992 -1047 -1789 -1997 -199 | . 94946 34998 75062 64957 54967 44970 34973 24976 110359 06536 00578 000578 00050 00193 01655 02019 02099 04995 07482 09990 113976 17991 | 00755 01821 02850 03715 04816 04816 04879 04676 03620 03802 02813 0266 01513 00341 01757 01362 0 | 048 095 118 141 162 156 142 120 114 083 040 .398 .557 .413 259 825 1313 -1.703 -1.154 805 557 409 537 | | |
| 15 14 15 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | .94977 .84954 .73913 .64981 .44990 .55012 .75016 .25012 .75054 .10079 .06550 .04050 .20087 .0 | - n07*1 - 01822 - 02851 - 02751 - 04797 - 04814 - 04880 - 04646 - 04681 - 03625 - 03208 - 02788 - 02282 - 01314 - 00379 - 01461 - 01473 - 02727 - 0282 - 03322 - 03322 - 03322 - 04466 - 04666 - 04681 | .113 .019 045 086 148 147 125 083 .011 .076 .184 .185 .311 .718 .465 461 1.289 -1.789 -1.789 -1.796 | . 94953 84934 74965 64980 54958 54958 54997 15015 10017 06521 10017 06521 00063 00185 00185 00185 00185 00185 00185 00185 00185 00185 00185 00185 00185 00185 00185 | - 00734 - 01823 - 02854 - 03714 - 14814 - 04880 - 04645 - 04678 - 03198 - 02268 - 01305 - 0 | .002 -037 -1097 -1124 -1157 -140 -129 -007 -059 -108 -252 -559 -444 -251 -1267 -1.725 -1.845 -1.267 -1.775 -1.892 -1.478 -1.267 -1.275 | . 94946 .34958 .75062 .64957 .54967 .34976 .24976 .14996 .06556 .000578 .000578 .00056 .00195 .00056 .00195 .00125 .00195 .00126 .00195 .00126 .00195 .00112 .00195 .00112 .00195 .00112 .00195 .00112 | 00735 01821 02850 03715 04 398 04 816 04 816 04 645 04 076 03 527 03 520 02813 02 546 01313 02 546 01313 02 546 0136 02 547 03 520 03 | 048095118141162156142114083040398557413259825 -1.315 -1.703 -1.154805557409557409559337559337 | | |
| 15 14 13 11 10 87 65 43 2 1 44 43 44 40 33 35 35 35 35 35 35 35 35 35 35 35 35 | .94977 .84954 .75905 .64931 .44990 .55016 .25012 .75056 .90597 .9 | - 007/1 - 01822 - 02851 - 02751 - 04797 - 04814 - 04880 - 04646 - 04681 - 03625 - 03208 - 02788 - 02282 - 01314 - 00379 - 01466 - 03522 - 03522 - 03522 - 04515 - 04681 - 0480 | .113 .019 -045 -186 -148 -147 -125 -083 .011 .076 .184 .185 .311 .718 .465 -842 -841 -1.289 -1.766 -1.099 -1.91 -1.267 762 556 484 396 396 | .94953 84934 74965 64980 54998 54997 15015 10017 06521 00365 00198 00198 00198 00198 0025 0129 01985 01785 01985 0 | - 00734 - 01823 - 02854 - 03714 - 148814 - 04645 - 04645 - 0467 - 03624 - 03198 - 02268 - 01305 - 01469 - 01365 - 01467 - 03529 - 02681 - 02772 - 04514 - 04681 - 04799 - 04869 - 04869 | .002 -037 -1097 -1124 -1157 -140 -129 -007 -059 -108 -252 -559 -444 -251 -784 -1.267 -1.725 -1.643 -1.017 -720 -4.78 -362 -352 -355 -320 | . 94946 34998 - 75062 - 64957 - 54967 - 34976 - 34976 - 14096 - 100359 - 06536 - 00056 - 00056 | 00735 01821 02850 03715 04 398 04 816 04 816 04 645 04 675 03 200 02813 02266 01313 00 361 01368 01889 02970 03 327 03 327 01 368 01 368 01 368 02 368 02 368 03 327 03 327 04 889 04 808 04 808 | 048095118141162156142114083040 .398 .557 .413259825 -1,313 -1,703 -1,154805557409359357559357559357559357520505 | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 4 3 2 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | .94977 .84954 .75905 .64933 .54933 .54933 .55016 .25012 .75016 .00547 .0 | - 007/1 - 01822 - 02251 - 07497 - 04814 - 04880 - 04681 - 04681 - 04282 - 03203 - 03782 - 01114 - 00779 - 011561 - 04286 - 04286 - 04287 - 04287 - 04287 - 04287 - 04486 - 04486 - 04486 - 04486 - 04486 - 04486 - 04486 - 04486 - 04486 | .113 .019 -045 -186 -1487 -125 -083 .011 .076 .184 .185 .311 .718 .465 -842 -441 -1.289 -1.766 -1.099 -1.891 -1.267 -263 -263 -263 -263 -263 -263 -263 -263 | . 94953 84934 74965 64985 44998 34997 10019 10019 10019 100825 001825 00 | - 00734 - 01823 - 02854 - 03714 - 04816 - 04445 - 04445 - 04478 - 03628 - 0 | . 002 -037 -1097 -1124 -1157 -140 -1070 -007 -007 -009 -108 -252 -359 -444 -251 -784 -1267 -1725 -1092 -1045 -1017 -720 -178 -1017 -720 -178 -178 -178 -178 -178 -178 -178 -178 | . 94 94 6 34 998 6 37 50 62 64 95 7 54 96 7 54 96 7 54 97 6 14 99 6 11 90 8 11 90 8 11 90 8 11 90 8 11 90 8 11 90 8 11 90 8 11 90 8 11 90 8 11 90 99 8 11 99 8 11 99 8 11 99 8 11 99 8 11 99 98 8 11 9 | - 00755 - 01821 - 02850 - 03758 - 04616 - 046879 - 04645 - 04675 - 03627 - 03627 - 03627 - 03757 - 01363 - 01757 - 01363 - 01757 - 01363 - 01363 - 02677 - 03627 - 03627 - 03627 - 03627 - 03627 - 03627 - 03627 - 03627 - 03627 - 04688 - 04880 - 04889 - 04859 - 04869 - | 048095118141162156142114083040398557413259825 -1.315 -1.703 -1.154805557409557409557559337559359 | | |
| 15 14 15 17 11 10 9 8 7 6 5 4 4 4 4 5 4 4 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 7 6 7 6 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 | 94077 \$4954 759ns 5408s 5408s 5408s 5408s 55012 1003e 6550 6460s 6650 66 | - 007/1 - 01822 - 02251 - 07497 - 04814 - 04880 - 04681 - 05625 - 03203 - 02788 - 04282 - 01114 - 00379 - 011561 - 0272 - 011561 - 0272 - 015625 - 035625 - 04681 - 04869 - 04869 - 04869 | .113 .019 .045 .045 .147 -123 .011 .076 .184 .185 .111 .418 .665 .242 .241 .1.289 -1.766 -1.999 -1.891 -1.267 -762 .556 .566 .566 .566 .566 .566 .566 .5 | . 94953 84934 74965 64985 44998 54997 10019 10019 10019 100825 000825 001825 00 | - 00734 - 01823 - 02854 - 03714 - 04816 - 04445 - 04445 - 04478 - 03524 - 03524 - 03524 - 03524 - 03525 - 02803 - 02803 - 02803 - 02608 - 02444 - 031365 - 0268 - | . 002 -037 -1097 -1124 -137 -140 -129 -0770 -007 -007 -08 -28 -28 -281 -184 -184 -186 -1892 -1992 -1043 -1992 -199 | . 94 94 6 34 958 75 962 64 957 64 977 54 976 14 976 14 976 14 976 14 976 14 976 14 976 14 976 14 976 14 976 14 976 17 976 17 976 17 976 17 997 18 9776 18 9776 18 9776 18 9776 18 9776 18 9776 18 9776 18 9776 18 9776 18 9776 18 9776 18 97776 | 00755 01821 02850 03715 04816 04817 04645 046476 03627 03207 03208 02813 02583 01361 01361 01362 01362 01363 | 0480951181411621561421120114085040988557413259825313 -1.703 -1.154805557409337409337409337409337409337305290284501 | | |
| 15 14 13 11 10 9 8 7 6 5 4 4 4 5 2 1 1 4 5 4 4 4 4 3 3 5 7 3 7 3 | 94977 \$4954 75003 44483 54483 44970 55016 25012 10039 06530 06430 06297 00184 00626 00184 00626 011228 02006 02486 0 | - 007*1 - 01822 - 027*51 - 027*51 - 04814 - 04880 - 04681 - 05625 - 05205 - 07288 - 02282 - 01114 - 00179 - 07727 - 011861 - 02486 - 04880 - 04886 | .113 .019 .045 .045 .147 .123 .083 .011 .076 .184 .185 .111 .718 .685 .111 .718 .687 .1.89 .1.766 .1.89 | . 94953 84934 74965 64980 54998 54997 110017 66521 10017 66521 001985 00185 00170 00185 00170 00185 0170 00185 0170 01985 0170 01985 0170 01985 | - 00734 - 01825 - 02854 - 03714 - 04896 - 04645 - 04645 - 03624 - 03198 - 02803 - 02803 - 02803 - 02803 - 02803 - 02803 - 02803 - 03520 - 03520 - 03620 - 0 | .002 -037 -1097 -1124 -1157 -140 -129 -007 -007 -009 -008 -252 -559 -444 -251 -784 -1.267 -1.725 -1.645 -1.017 -720 -478 -302 -488 -217 | . 94 94 6 34 998 8 75 962 7 54 967 7 54 973 5 24 976 7 1909 100 53 6 100 53 | 00755 01821 02850 03715 04816 04816 04675 04675 03627 03520 02813 02266 01313 00341 00757 01368 | 0480951181411621561421120114085040988557413259825313 -1.703 -1.154805557409337409337409337409337409337305290284501272272 | | |
| 15 114 113 111 10 9 8 7 6 5 4 4 4 4 3 3 3 3 7 3 3 3 3 3 3 3 3 3 3 3 | 94977 \$4954 75003 64983 54983 54983 64983 64983 64990 65510 64093 66550 66744 66994 66994 67995 67 | - 007*1 - 01822 - 027*51 - 027*51 - 04814 - 04880 - 04686 - 04681 - 03625 - 03208 - 02282 - 03114 - 00379 - 011561 - 02728 - 031561 - 02788 - 02282 - 031561 - 04862 - | .113 .019 -045 -148 -147 -127 -183 .011 .076 .184 .185 .111 .418 .465 -842 -841 -1.289 -1.766 -1.999 -1.766 -1.999 -1.891 -1.267 -2.556 -396 -396 -396 -396 -396 -396 -396 -39 | . 94953 84934 74965 64980 54998 54997 110017 66521 10017 66521 001985 001985 001985 001985 011985 011985 011985 01991 11999 22010 25996 25 | - 00734 - 01825 - 02854 - 03714 - 04896 - 04645 - 04645 - 03624 - 03624 - 03198 - 02803 - 04803 - 0 | . 002 -037 -1097 -1124 -1157 -140 -129 -007 -007 -007 -008 -252 -559 -444 -251 -784 -1267 -1.725 -1.645 -1.725 -1.645 -1.725 -1.645 -1.725 -1.645 -1.725 -1.645 -1.725 -1.645 -1.725 -1.720 -1. | 94946 34998 75962 64957 54967 14976 34978 14976 110039 06536 01085 00050 001985 00050 001985 002012 00996 13976 13976 23978 29986 45970 27996 41988 45970 44997 537785 | 00755 01821 02850 03715 04816 04816 04076 04076 03627 03520 02813 02266 01313 00341 0277 01368 01889 02870 03627 03500 02813 02266 01362 | 048095118162156142156142114083114084094557413259825 -1.313 -1.703 -1.154305357409357409359 | | |
| 15 14 15 17 11 10 9 8 7 6 5 4 4 4 5 4 4 4 4 4 4 4 4 4 4 4 4 5 5 5 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 | 94977 \$4954 75003 44983 54983 54983 64990 65016 60597 60659 60659 60674 60674 60674 60674 60744 60 | - 007*1 - 01822 - 027*51 - 027*51 - 04814 - 04880 - 04681 - 05625 - 05205 - 07788 - 02282 - 01314 - 00179 - 07727 - 01361 - 02481 - 02482 - 034821 - 04880 - 04892 - 04886 - 04886 | .113 .019 -045 -186 -148 -127 -183 .011 .076 .184 .185 .111 .408 -842 -841 -1.289 -1.766 -1.766 -1.999 -1.891 -1.287 -2.556 -364 -364 -364 -364 -364 -364 -364 -36 | .94953 84936 74965 64980 54998 54997 110017 66521 10017 66521 00062 00170 00062 00170 00062 0170 00062 0170 00062 0170 00062 0170 00062 0170 00062 0170 00062 0006 | - 00734 - 01825 - 02854 - 03714 - 04896 - 048814 - 04645 - 04645 - 03624 - 03198 - 02803 - 04803 - | . 002 -037 -1097 -1124 -1157 -140 -1070 -007 -007 -008 -251 -251 -251 -1284 -251 -1284 -1287 -1287 -1392 -13 | 94946 34998 75962 64957 54967 14976 14976 14976 10039 06536 01085 00050 011985 00050 011985 01265 02019 04995 07482 09996 13976 13796 14988 45970 449987 53775 557785 | 00735 01821 02850 03715 04816 04816 04675 04675 03627 03520 02813 02266 01313 00341 02777 01368 01362 013 | 048095118162156142156142114083114084094557413259825 -1.313 -1.703 -1.154305357409357409359 | | |
| 15 14 13 11 11 10 9 8 7 6 5 4 4 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 94977 84954 73015 64981 44990 15016 25012 10039 06550 06050 2008 00039 0 | - 007*1 - 01822 - 022*51 - 02755 - 04*97 - 04814 - 04880 - 04686 - 04681 - 03625 - 03208 - 02282 - 01314 - 01795 - 01827 - 01827 - 01827 - 01827 - 01828 - 0288 - 0288 - 0288 - 0288 - 0288 - 0288 - 0288 - 0488 - 0489 - 0 | .113 .019 -045 -086 -148 -147 -125 -083 .011 .076 .184 .185 .311 .718 .465 -241 -1.789 | .94953 .84934 .74965 .64985 .44998 .44993 .24997 .10019 .00521 .03999 .01085 .00185 .0129 | - 00734 - 01823 - 02854 - 03714 - 04816 - 04645 - 04645 - 04678 - 02803 - 0 | . 002 -037 -1097 -1124 -137 -140 -129 -070 -007 -007 -08 -251 -784 -1.267 -1.725 -1.643 -1.292 -1.643 -1.298 -286 -286 -286 -286 -286 -286 -286 -28 | . 94946 . 34958 . 75062 . 64957 . 54967 . 54973 . 24976 . 10039 . 06556 . 04025 . 011985 . 00056 . 00193 . 01685 . 02019 . 04099 . 05096 . 05096 . 05096 . 05099 | 00735 01821 02850 03715 04 398 04 816 04 816 04 645 04 075 03 207 03 207 03 207 03 207 01 368 01 313 02 266 01 313 02 277 0. 03 81 02 277 0. 03 827 03 327 0. 03 81 04 818 0. 04 818 0. | 04809511814116215614211561201120114083040083040083259259259313 -1.703 -1.1543574093574093573505290284501272263263282310 | | |
| 15 14 15 17 11 10 10 10 10 10 10 10 10 10 10 10 10 | 94077 \$494 759ns 14099 15014 16029 15014 16029 16039 16039 16039 16039 16039 16039 16039 16039 16039 16039 16039 16039 17779 17940 17940 | - 007*1 - 01822 - 02251 - 02757 - 04814 - 04846 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04681 - 04686 - 04681 - 04686 - 04686 - 04686 - 04686 - 0488 | .113 .019 .045 .045 .146 .147 .125 .083 .011 .076 .184 .185 .111 .465 .842 .841 .1.289 .1.766 .1.999 .1.891 .1.267 .762 .566 .484 .566 .566 .566 .566 .566 .566 .566 .56 | .94953 .84934 .74965 .64985 .44998 .34992 .24997 .10019 .00521 .03999 .01085 .0 | - 00734 - 01825 - 02854 - 03714 - 04896 - 04645 - 04645 - 03624 - 03198 - 0268 - 026 | . 002 -037 -197 -124 -157 -140 -179 -007 -108 -252 -559 -444 -251 -784 -1267 -1725 -1892 -1017 -720 -478 -304 -3159 -286 -286 -298 -286 -286 -277 -199 -159 -1159 -159 -159 -170 | 94946 34998 75062 64957 54967 34976 14996 10039 06536 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00050 001985 00 | 00755 01821 02850 03715 04816 04816 04676 04676 03627 03520 02813 02266 01513 00361 0277 01568 01889 0287 03627 03627 01563 01513 00361 0277 01568 016889 016889 016889 016889 016889 016889 016889 016889 016889 016889 016889 016889 016889 016899 0 | 048095118141162115614211561201120114083040083040083153259259313 -1.703 -1.154357409337409337409337409337409337409337409337409337320284301272263282310388388 | | |
| 15 14 15 17 17 17 17 17 17 17 17 17 17 17 17 17 | 94977 \$4954 750ns 54984 54984 54984 54984 10039 06550 06650 06650 06674 06675 06744 06675 07448 11979 22001 24966 07448 17979 22061 27984 27 | - 007*1 - 01822 - 02*51 - 02*51 - 04*14 - 04*846 - 04*86 - 04*86 - 03*625 - 03*26 - 03*625 - | .113 .019 -045 -148 -147 -123 -083 -011 .076 .184 .185 .111 .218 .465 -842 -841 -1.289 -1.766 -1.999 -1.767 -762 -566 -484 -1.999 -1.767 -762 -762 -764 -1.766 -1.999 -1.766 -1.999 -1.766 -1.999 -1.766 -1.7 | . 94953 84934 74965 64985 14996 14997 15015 10017 16521 10017 16521 10017 10025 00185 00185 00185 00185 1018 | - 00734 - 01825 - 02854 - 03714 - 04896 - 04645 - 04645 - 03624 - 03198 - 02685 - 0 | . 002 -037 -197 -124 -157 -140 -179 -007 -108 -252 -559 -444 -251 -784 -1.267 -1.725 -1.643 -1.273 -1.017 -720 -720 -720 -720 -720 -720 -720 -72 | 94946 34998 75962 64957 54967 14976 14976 14976 10039 06556 00193 00655 00193 00656 02192 04999 04995 07482 09996 17991 21990 25976 25976 25976 27482 04997 57785 61976 | 00755 01821 02850 03715 04816 04816 04676 04676 03627 03520 02813 02266 01513 00341 0277 01568 01889 02870 03627 03627 015627 03627 03627 04076 02813 02266 04800 | 048095118162156142156142118040 .398040 .398259825313 -1.703 -1.154805557409825313 -1.703 -1.530 -1.337409282310282310282310344388479 | | |
| 15 14 13 11 11 10 9 8 7 6 5 4 4 3 2 1 1 1 1 1 2 1 3 2 3 3 3 5 3 5 3 5 3 5 3 5 3 5 3 5 3 5 | 94977 84954 75075 64981 54981 55016 25012 10079 06550 06087 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00087 00184 00 | - 007*1 - 01822 - 02251 - 02751 - 04914 - 04846 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 04681 - 04686 - 04681 - 04686 - 04686 - 04686 - 04686 - 04686 - 04686 - 0488 | .113 .019 .045 .045 .147 .123 .083 .011 .076 .184 .185 .111 .718 .685 .711 .718 .687 .789 .1. | .94953 .84934 .74965 .64985 .44998 .34992 .24997 .10019 .00521 .03999 .01085 .0 | - 00734 - 01823 - 02854 - 03714 - 148814 - 04645 - 04645 - 04678 - 03524 - 03198 - 02268 - 01305 - 01305 - 01305 - 01305 - 01305 - 0268 - 0268 - 0449 - 04514 - 0469 - 0479 - 0480 - 0491 - 0491 - 0491 - 0491 - 0453 - 0451 - 04790 - 0469 - 04790 - 04790 - 0469 - 04790 - 04790 | .002 -037 -1097 -1124 -1157 -140 -129 -007 -059 -108 -252 -559 -444 -251 -784 -1.267 -1.725 -1.663 -1.07 -720 -4.78 -302 -2.86 -2.17 -1.99 -2.86 -2.17 -1.99 -1.159 | . 94946 . 34998 . 75962 . 64997 . 54967 . 14996 . 34976 . 14996 . 34976 . 10039 . 06556 . 00193 . 01265 . 011985 . 01265 . 02019 . 04995 . 07482 . 07996 . 13976 . 13976 . 13996 . 13996 . 13976 . 13996 . 13996 . 13997 . 13998 . 13988 . 13988 . 13988 . 13988 . 13988 . 13988 . 13988 . 13988 . 13988 . 13988 . 13988 . 139 | 00755 01821 02850 03798 04816 04879 04676 03627 03520 02813 02266 02813 01513 00341 01513 01515 01712 01712 01712 01712 01712 01712 | 048095118162156142156142156142183040 .398040 .3981313 -1.703 -1.154805557409337505296286287282281284282310388479488 | | |
| 15 14 13 17 11 10 9 8 7 6 5 4 4 3 2 1 1 1 1 2 1 1 1 2 1 3 3 5 3 5 4 4 3 5 3 5 3 5 3 5 3 5 3 5 3 | 94977 \$4954 750ns 54984 54984 54984 54984 10039 06550 06650 06650 06674 06675 06744 06675 07448 11979 22001 24966 07448 17979 22061 27984 27 | - 007*1 - 01822 - 02*51 - 02*51 - 04*14 - 04*846 - 04*86 - 04*86 - 03*625 - 03*26 - 03*625 - | .113 .019 -045 -148 -147 -123 -083 -011 .076 .184 .185 .111 .218 .465 -842 -841 -1.289 -1.766 -1.999 -1.767 -762 -566 -484 -1.999 -1.767 -762 -762 -764 -1.766 -1.999 -1.766 -1.999 -1.766 -1.999 -1.766 -1.7 | .94953 .84934 .74965 .64985 .44998 .34997 .10019 .00521 .03999 .01085 .0 | - 00734 - 01825 - 02854 - 03714 - 04896 - 04645 - 04645 - 03624 - 03198 - 02685 - 0 | . 002 -037 -197 -124 -157 -140 -179 -007 -108 -252 -559 -444 -251 -784 -1.267 -1.725 -1.643 -1.273 -1.017 -720 -720 -720 -720 -720 -720 -720 -72 | . 94946 . 34998 . 75062 . 64957 . 54967 . 44970 . 24976 . 10039 . 06556 . 06055 . 01085 . 01085 . 01085 . 02012 . 0201 | 00755 01821 02850 03715 04816 04816 04676 04676 03627 03520 02813 02266 01513 00341 0277 01568 01889 02870 03627 03627 015627 03627 03627 04076 02813 02266 04800 | 048095118162156142156142118040 .398040 .398259825313 -1.703 -1.154805557409825313 -1.703 -1.530 -1.337409282310282310282310344388479 | | |

TABLE B1-8

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2542

MO = .6971 ALPHA = 6.00 REC = 11.63*10**6

| | SECTION 1 | | SECTION 2 | | SECTION 3 | | SECTION | 4 | |
|--|--|--|---|--|---|---|---|--|---|
| NP | x/L 2/L | CP | x/L 1/L | CP | x/L Z/L | CP | X/L | 2/1 | CP |
| 12 11 10 9 8 7 6 6 5 4 3 2 1 34 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | .950*000726 .8159702193 .6659301587 .5658404773 .6659904773 .5658904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904773 .6659904879 .6659904879 .6659904879 .6669904879 .6669904879 .6669904679 .6669904679 .7862602596 .78626 | -113 -003 -046 -078 -094 -055 -007 -080 -224 -347 -747 -530 -1101 -889 -1.551 -1.898 -1.022 -669 -606 -557 -527 -484 -466 -461 -548 -306 -2552 -195 -066 -174 | | .129 .611 -044 -080 -084 -084 -071 -262 -414 -773 -465 -221 -1,069 -1,758 -2,033 -1,767 -605 -601 -556 -525 -491 -467 -415 -382 -267 -415 -382 -218 -1578 -094 | .9499900737 .8198602152 .6700833553 .7035304272 .4703706760 .3700904890 .2701004715 .170100424 .0531602275 .0030102275 .0030102275 .0030102275 .0030102275 .0030102275 .00302 .00317 .00322 .00806 .00914 .01440 .02336 .02273 .00806 .00902 .00317 .03508 .02298 .05002 .03128 .10029 .03128 .10029 .03426 .10029 .03426 .10029 .04674 .30008 .04690 .35024 .04679 .40037 .04885 .50024 .04679 .40037 .04881 .50024 .04679 .40037 .04881 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .40037 .04883 .50024 .04679 .05026 .03771 .71334 .02288 .85001 .04073 .78006 .02563 .85001 .01815 .92012 .01023 | . 130 . 011 . 050 . 077 . 091 . 009 . 009 . 009 . 097 . 297 . 456 . 785 . 570 . 1.159 -1.848 -2.139 -2. 075 -1.225 572 565 475 438 406 361 247 244 189 189 189 189 197 246 361 297 246 361 305 - | . 94,947 . 82223 . 67210 . 57230 . 47220 . 37235 . 27235 . 27230 . 17242 . 05017 . 00010 . 00210 . 00210 . 00210 . 00210 . 00311 . 10019 . 15024 . 25021 . 35021 . 350 | 00751 02125 03537 04261 04751 04765 04258 022974 02268 01355 00000 00787 01619 02701 02701 03625 04078 | .124 .005 -005 -072 -110 -110 -110 -110 -110 -110 -110 -11 |
| NP | SECTION 5 | CP. | SECTION 6 | CP | SECTION 7 | CP | | | |
| 15 14 13 12 11 10 9 8 7 6 5 4 4 5 4 4 5 4 4 5 4 7 4 7 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 | 9497700751 8495401822 7500301825 7500302851 6498803713 5499364597 4499004814 .3521604880 .7501204646 .1505404681 .10072903675 .0405007788 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0201007288 .0744803522 .099940352103995 | .099 -017 -040 -077 -126 -126 -095 -043 -037 -273 -273 -273 -413 -750 -1014 -1015 -1464 -1903 -1961 -1491 -1491 -1876 | 9495 x0073 849340182 .649800185 .649800373 .549550481 .549970481 .549970484 .549970484 .519160407 .005210319 .019990280 .019990280 .01993 | 4 .002 3 -009 4 -000 4 -106 6 -119 4 -148 5 -105 | .9494600735 .6495801821 .7500202850 .6495703715 .6496704598 .4497004816 .5497304876 .4497604645 .1409604076 .003903627 .00556028813 .0198502266 .0057601313 .0050500361 .00193007570050500361001930075700630013630126501889020120227099900258304995029700748203327099900362109990036210999003621 | 0030091131551511681551341666893271915673144129921461166614411.258732468 | | | |
| 36 35 36 33 31 30 28 27 26 25 24 23 21 20 19 18 17 16 | | - 624 - 479 - 408 - 362 - 336 - 332 - 290 - 278 - 209 - 174 - 146 - 117 - 092 - 065 - 035 - 001 - 031 - 064 | 17999 0427 22010 0451 25994 0479 34008 0488 37994 0479 34108 0488 37994 0468 45975 0479 49994 0464 55988 0465 57991 0421 61976 0393 69976 0350 69976 0250 77962 0256 81965 0215 88980 0170 89977 0124 98462 0627 | 4406 1365 9315 9317 1292 7277 0256 9225 0268 9168 9168067 6667 4041 7021 1001 2 .038 | 17991 04288 2996 04514 25976 04682 29986 04800 35379 04885 45976 04789 04885 066274 | - 409 - 379 - 360 - 335 - 318 - 306 - 333 - 309 - 321 - 355 - 434 - 465 - 515 - 563 - 589 - 589 | | | |

TABLE B1-9

TEST 2305

MO = .3399 ALPHA = .04 REC = 11.72*10**6

| | SECTION | , | | SECTION | 2 | | SECTION | 3 | | SECTION | | |
|----------------|--------------------------------------|---------|----------------------|----------------------------|--------|--------------|----------------------------|----------------------------|-------|---------|---------|----|
| NP | ×/L | 211 | CP | X/L | 2/1 | CP | ×/L | 2/1 | CP | X/L | 2/1 | |
| 12 | .95050 | 00726 | .103 | .94737 | 00735 | .143 | . 74 999 | 00737 | . 157 | .94937 | 00/31 | |
| 11 | . 31507 | 02193 | 397 | .81705 | 02182 | 050 | . 31 986 | 02152 | 326 | .82223 | 02125 | -: |
| 10 | . 56599 | 04501 | 333 | -66698 | 03579 | 200 | .67008 | 03553 | 174 | .67216 | 03537 | |
| 9 | . 46500 | - 04773 | 199 | .46705 | 04769 | 409 | .57333 | 04272 | 397 | .57230 | 04261 | |
| ? | .36580 .26579 | 04889 | 356 | . 36705 | 04889 | 597 | . 37009 | 04890 | 444 | . 37235 | 04391 | |
| 3 | .16594 | 04707 | 315 | . 16699 | 04706 | 358 | . 27010 | 04715 | 391 | .17242 | 04723 | |
| 4 | .04705 | 02071 | 327 | .04909 | 02958 | 577 | . 05016 | 32975 | 557 | .05017 | 02974 | -: |
| 2 | .00523 | 02369 | 512 | .01922 | 02242 | 520 | .02016 | 02275 | 512 | .01999 | 02263 | ٠. |
| 1 | .00034 | .00235 | .840 | .00031 | .00277 | .265 | .00042 | 01326 | .295 | .00611 | 01355 | |
| 33 | .00216 | .01592 | .158 | .00103 | .00553 | .622 | .00222 | .00806 | . 580 | .00210 | .00737 | |
| 32 | .02237 | .02725 | - 355 | .01705 | .01531 | 459 | .00714 | .01640 | 535 | .02012 | .01619 | |
| 31 | .03525 | .02701 | - 701 | .03402 | .02674 | 470 | .03508 | .02698 | 567 | .03530 | .02701 | -: |
| 30 | .04034 | .03617 | 257 | .05911 | .03113 | 309 | .06022 | .03128 | 361 | .06011 | .03127 | |
| 29 | . 15937 | .04080 | 239 | .14927 | .04071 | 304 | . 15032 | .04078 | 363 | .10019 | .03623 | -: |
| 27 | .25039 | .04647 | 265 | . 19909 | .04405 | 347 | . 50056 | .04411 | 38 3 | .20016 | .04410 | |
| 25 | .30050 | .04800 | 305 | .25080 | .04649 | 363 | .25024 | .04800 | 402 | .30021 | .04647 | -: |
| 24 | . 35050 | .04979 | 335 | . 34927 | .04878 | 401 | . 35024 | .04879 | 451 | . 35015 | .04879 | -: |
| 23 | .40047 .45339 | .04986 | 369 | . 39931 | .04886 | 428 | .45010 | .04886 | 444 | .45009 | .04885 | |
| 21 | .50759 | .04649 | 386 | .49927 | .04652 | 395 | .50024 | . 34647 | 376 | .50020 | .04643 | : |
| 19 | .55025 | .04 775 | 357 | .54927 | .04398 | 333 | .55042 | .04 392 | 306 | .55033 | . 04323 | |
| 19 | .65032 | .03711 | 271 | .64217 | .03719 | 280 | .60071 | .C4073 | 192 | .65013 | .04078 | -: |
| 17 | .71026 | .03212 | 217 | .70397 | .03229 | 166 | .71034 | .03218 | 145 | .70977 | . 03222 | -: |
| 16 | .78026 .85021 | .02561 | 152 | .77912 | .02572 | 094 | .780C8 .850C1 | .02563 | 070 | .78012 | ,02562 | |
| 14 | .92027 | .01021 | .053 | .91929 | .01032 | .094 | .92012 | .01023 | .110 | .92005 | .01023 | : |
| 13 | .98518 | .00265 | .175 | .98387 | .00283 | . 203 | . 98511 | .00251 | . 221 | .98493 | .00267 | |
| | SECTION | 5 | | SECTION | 6 | | SECTION | 7 | | | | |
| NP | X/L | 2/1 | CP | X/L | 1/1 | CP | x/L | 1/1 | CP | | | |
| 15 | .94777 | 90751 | .163 | .94955 | 60734 | .152 | .94946 | 00735 | .133 | | | |
| 14 | .75003 | 01922 | 057 | .74963 | 01823 | 039 | .84958 .75002 | 01821 02850 | .045 | | | |
| 12 | -64788 | 01713 | 135 | .64983 | 03714 | 113 | .64757 | 03715 | 092 | | | |
| 11 | .54000 | 04197 | 310 | .54755 | 04396 | 180 | . 54767 | 04393 | 152 | | | |
| • | .35016 | 04880 | 345 | . 34993 | 14880 | 291 | . 54973 | 34879 | 251 | | | |
| 3 | .15054 | 04081 | 471 | -24997 | 04645 | 328 | .24976 | 04645 | 28 5 | | | |
| 5 | .10323 | 03625 | - 101 | .15015 | 04078 | 577 | .14996 | 03627 | 291 | | | |
| 5 | -06559 | 03203 | 521 | .06521 | 03198 | 453 | .06536 | 03200 | 648 | | | |
| 4 | .04030 | 02789 | 583 | .01785 | 02803 | 601 | .04025 | 02813 | 790 | | | |
| 2 | .00587 | 01314 | .276 | .00567 | 01305 | .228 | .00578 | 01313 | .100 | | | |
| 45 | .00194 | .00372 | .903 | .00059 | .00449 | .495 | .00050 | .00361 | .710 | | | |
| 44 | .00525 | .01361 | .155 | .00623 | .01365 | .158 | .00630 | .01363 | .051 | | | |
| 43 | .01223 | .01873 | 236 | .01209 | .01851 | 243 | .01265 | .01889 | 337 | | | |
| 41 | .02999 | . 72581 | 753 | .02991 | .02584 | - 792 | .02999 | .02533 | 313 | | | |
| 40 | .04755 | .02966 | 469 | .04972 | .02967 | 590 | .04995 | .02970 | 746 | | | |
| 39 | .07448 | .03322 | 418 | .07488 | .03329 | 516 | .07482 | .03327 | 693 | | | |
| 37 | .13996 | .03005 | 440 | -13933 | .03994 | 602 | . 13976 | .03795 | 285 | | | |
| 35 | .17979 | .04515 | 461 | .17999 | .04272 | 319 | . 17991 | .04233 | 296 | | | |
| 34 | - 25244 | .74681 | 403 | .25776 | .04681 | 318 | . 25976 | .04632 | 285 | | | |
| 33 | . 33795 | .04260 | 350 | . 34003 | .04799 | 313 | . 33979 | .04800 | 270 | | | |
| 31 | . 37926 | .04892 | 337 | - 37776 | .04891 | 259 | . 37976 | .04892 | 248 | | | |
| 30 | .41959 | .04867 | 322 | .4198° .45976 | .04867 | 217 | .41988 | .04863 | 25 5 | | | |
| 23 | - 40060 | .04650 | 244 | .47774 | .04649 | 269 | .49987 | .36643 | 194 | | | |
| 27 | .53959 | .04452 | 227 | .53988 | .04450 | 200 | . 53975 | .04452 | 159 | | | |
| 26 | .57941 .61997 | .04214 | 184 | .57991 | .04210 | 153 | .57985 | .04214 | 124 | | | |
| 24 | .65768 | . 03637 | 118 | . 55979 | .03635 | 100 | . 65966 | . 33636 | 079 | | | |
| 23 | .73740 | .03508 | 093 | .69976 | .03308 | 067 | .69979 | .03309 | 355 | | | |
| | . 12440 | .02567 | 065 | .77962 | .02946 | 015 | .77942 | .02570 | 007 | | | |
| 21 | .77760 | | | | | 7 2 2 1 | | | 224 | | | |
| 50 | .81037 | . 72157 | .017 | .81765 | .02154 | .024 | .81985 | .02150 | .325 | | | |
| | | .01707 | .017 .058 .101 | .85290 | .01707 | .060 | . 85943 | .01712 | .057 | | | |
| 19 18 17 | .81017 .85055 .80040 .94727 | .01707 | .101 | .85990 .39977 .94861 | .01707 | .060 .098 | .85943 .89961 .94959 | .01712 .31243 .00733 | .057 | | | |
| 19 | .81917 .85955 .89940 | .01707 | . 101 | .85230 | .01707 | .060 | .85943 | .01712 | .057 | | | |

TABLE B1-10

CP

- 159
-- 009
-- 149
-- 1346
-- 3466
-- 3466
-- 3471
-- 374
-- 517
-- 375
-- 415
-- 567
-- 577
-- 755
-- 585
-- 587
-- 587
-- 419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 4419
-- 44

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

SECTION 2

TEST 2396

SECTION 4

SECTION 3

MO = .8371 ALPHA = .03 REC = 11.69*10**6

| NP | X/L 7/L | CP | X/L 7/L | CP | x/L 2/L | CP | X/L 1/L |
|---|--|---|--|---|---|--|---|
| 12 11 10 9 7 6 6 5 4 4 3 2 2 1 3 3 5 3 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 950 1000726 3159702193 A659501587 5654904701 4659004771 6659004799 2657904722 1057904722 1057901535 1057901535 1057901535 1057901535 1057901535 1057901535 1057902761 105790285 10579 | . 102 093 214 226 419 551 329 284 330 882 | 9493700735 8170502182 6699405579 5576504294 4672604296 165990489 2676504206 1059907242 0352001261 00031 .00277 03103 .00553 03789 .01531 01906 .02232 03402 .02674 03911 .03113 03913 .03613 14927 .04071 19909 .04405 25980 .04649 23925 .04798 34927 .04652 54927 .04658 44927 .04652 54927 .04598 54927 .04658 54937 .04688 64497 .04652 54927 .04688 64497 .04688 64497 .04688 6497 .04688 | .158 -049 -198 -508 -405 -397 -359 -347 -512 -265 -831 -623 -091 -416 -302 -304 -347 -360 -347 -360 -379 -396 -420 -413 -387 -351 -277 -227 -104 -399 | .9499900737 .81986 -02152 .9700803555 .5703304272 .4703704760 .2701604716 .2701604716 .2701602275 .0050102275 .0050102275 .0050101526 .00042 .00317 .00222 .00896 .00522 .00896 .00522 .35128 .00029 .04411 .255024 .04647 .55008 .04873 .40037 .04885 .45010 .04813 .55024 .04647 .55042 .04592 .60071 .04673 .65026 .35711 .75034 .04647 .55042 .04592 .60071 .04673 .65026 .0598 .65026 .0598 .65026 .04873 .75034 | .152 -027 -173 -270 -392 -436 -359 -498 -294 -822 -822 -921 -616 -573 -559 -559 -5498 -244 -419 -570 -508 -247 -101 -015 -108 -214 | .9499700751 .8222502125 .6721603157 .5723004261 .4722004753 .5723504891 .7723004891 .7723004725 .7723004273 .7724204253 .05617022974 .0199902268 .0061103553 .00000 .000760 .00071 .000760 .00077 .0007 |
| | SECTION S | | SECTION 6 | | SECTION 7 | | |
| NP | X/L 2/L | CP | x/L Z/L | CP | X/L 2/L | CP | |
| 15 14 15 12 11 10 9 8 7 6 5 4 4 5 2 1 1 45 44 44 40 40 40 40 40 40 40 40 40 40 40 | 94977 - 00731 84944 - 01822 75003 - 02851 64988 - 03713 46990 - 04814 55016 - 04686 75017 - 04686 75 | .159 .038 -038 -136 -508 -136 -508 -137 -510 -444 -275 -414 -394 -676 -681 -581 -581 -581 -581 -681 -681 -681 -681 -681 -681 -681 -6 | 9495500734 8493401823 7496402854 6498303714 5499804816 5499704816 5499704816 5499704816 1031903808 10 | .149 .044 -039 -112 -128 -266 -289 -329 -482 -513 -469 -728 -567 -727 -773 -496 -165 -236 -552 -601 -511 -325 -310 -311 -229 -227 -177 -227 -172 -216 -014 -014 -014 -014 -014 -014 -014 -014 | . 94946 | .131 .045 .033 093 153 228 251 283 297 379 675 .098 .709 .600 .053 227 710 253 227 710 289 226 289 289 289 286 247 194 102 287 217 103 287 217 103 289 299 - | |

TABLE B1-11

MO = .8308 ALPHA = 1.07 REC = 11.71410446

| | SECTION | 1 | | SECTION | 5 | | SECTION | 3 | | SECTION | 4 | |
|----|---------|--------|-------|---------|--------|-------|----------|---------|-------|---------|---------|--------|
| NP | X/L | 7/1 | Cp | 1/L | 1/1 | CP | X/L | 1/1 | CP | X/L | IIL | Co |
| 12 | .95030 | 00724 | .103 | .94937 | 00735 | . 140 | . 94 999 | 00737 | .154 | .94987 | 00731 | . 160 |
| 11 | .81577 | 02193 | 094 | .81735 | 02182 | 053 | .81986 | 02152 | 326 | .82223 | 02125 | 010 |
| 10 | . 56595 | 03587 | 217 | . 66698 | 03579 | 193 | .67008 | 03553 | 168 | .67216 | 03537 | 147 |
| 3 | .55599 | 04301 | 298 | .56705 | 04294 | 288 | .57033 | 04272 | 258 | .57230 | 04261 | 251 |
| 3 | .46599 | 04773 | 353 | . 46726 | 04769 | 366 | .47037 | 04760 | 565 | .47220 | 04755 | 534 |
| 7 | .36520 | 06980 | 310 | . 36705 | 04889 | 343 | . 37009 | 04870 | 382 | . 37255 | 04891 | 571 |
| 6 | . 26579 | 04702 | 264 | .25705 | 04706 | 298 | .27010 | 04716 | 321 | .27250 | 04725 | 555 |
| 5 | . 14594 | 04194 | 215 | .16699 | 04202 | 256 | .17010 | 34224 | 269 | .17242 | 04253 | 288 |
| 4 | .04003 | 02071 | 231 | .04707 | 02958 | 265 | .05016 | 02975 | 237 | .05017 | 02974 | 266 |
| 3 | .02002 | 02268 | 528 | .01922 | 02242 | 327 | .02010 | 02275 | 293 | .01999 | 02263 | 508 |
| 2 | .00503 | 01333 | .378 | .03520 | 01261 | . 376 | .00591 | 31326 | .409 | .00611 | 01355 | . 395 |
| 1 | .00034 | .00303 | . 235 | .00031 | .00277 | .824 | .00042 | .00317 | . 310 | .00000 | .00000 | . 305 |
| 34 | .00216 | .00202 | . 582 | .00109 | .00553 | .544 | .00222 | .00906 | . 494 | .00213 | .00787 | .472 |
| 33 | .00955 | .01592 | .041 | .00789 | .01531 | 044 | .00914 | .01640 | 115 | .00893 | .01619 | 118 |
| 32 | .02037 | .02285 | 505 | .01706 | .02232 | 659 | .02336 | .02275 | 095 | .02012 | .02276 | 779 |
| 31 | .03525 | .02701 | 553 | . 03402 | .02674 | 854 | .03508 | .02698 | 975 | .03530 | .02701 | -1.009 |
| 30 | . 06036 | .03130 | 356 | . 05911 | .03113 | 417 | .06022 | .03128 | 380 | .06011 | .03127 | 324 |
| 53 | .00050 | .03617 | 314 | .09913 | .03613 | 398 | . 10029 | .03626 | 461 | .10019 | . 03623 | 467 |
| 23 | .15037 | .04020 | 109 | .14927 | .04671 | 376 | . 15032 | .04073 | 445 | .15024 | .04078 | 492 |
| 27 | .20244 | .04413 | 327 | .119909 | .04405 | 418 | . 20029 | .04411 | 469 | .20016 | .04410 | 512 |
| 26 | . 25050 | .04647 | 347 | 25080 | .04649 | 429 | . 25024 | .04647 | 486 | .25021 | .04647 | 526 |
| 25 | .30050 | .04800 | 358 | . 29725 | .04798 | 441 | . 30008 | .04800 | 509 | .30021 | .04799 | 546 |
| 24 | . 35050 | .04870 | 589 | . 34927 | .04878 | 467 | . 35024 | . 34877 | 541 | .35015 | .04379 | 572 |
| 23 | .40047 | .04886 | 421 | . 39931 | .04886 | 504 | .40037 | .04385 | 540 | . 39977 | .04885 | 556 |
| 22 | . 45030 | .04912 | 450 | -44997 | .04815 | -,515 | .45010 | .04813 | 440 | .45039 | .04313 | 347 |
| 21 | .50039 | .04649 | 449 | .49927 | .04652 | 423 | .50024 | .04649 | 379 | .50020 | .04648 | 319 |
| 50 | .55025 | .04304 | 598 | .54927 | .04398 | 349 | . 55042 | .04392 | 308 | .55033 | .04393 | 269 |
| 19 | . 50029 | 04075 | 344 | .59931 | .04083 | 289 | .60071 | .04073 | 249 | .60018 | .04078 | 211 |
| 18 | .65032 | .03711 | 290 | .64917 | .03719 | 236 | .65326 | .03711 | 194 | .65015 | . 63711 | 150 |
| 17 | .71024 | .03210 | 230 | .70997 | .03229 | 167 | .71034 | .03218 | 144 | .70977 | .03255 | 112 |
| 16 | .78026 | .02561 | 160 | .77912 | .02572 | 093 | .78008 | .02563 | 068 | .78012 | .02562 | 043 |
| 15 | .85021 | -01814 | 051 | .84933 | .01826 | 003 | .85001 | .01815 | .021 | .85010 | .01315 | . 355 |
| 14 | .92027 | .01021 | .051 | .91929 | .01032 | .099 | .92012 | .01023 | .113 | .92005 | .01023 | .126 |
| 13 | 98518 | .00265 | .175 | .98387 | .00283 | .206 | .98611 | .00251 | .222 | .98498 | .00267 | . 221 |

| | SECTION 5 | | | SECTION | 6 | | SECTION | 7 | |
|-----|-----------|---------|-------|-----------|---------|--------|----------|----------|--------|
| NP | x/L | 1/1 | CP | X/L | 1/1 | CP | X/L | 1/1 | CP |
| 15 | .94977 | 00731 | .157 | .94955 | 00734 | -145 | .941-6 | 00735 | .115 |
| 14 | . 34754 | 01822 | .034 | .84934 | 01823 | .037 | . 84 958 | 01821 | . 031 |
| 1.5 | . 75003 | 02851 | 060 | .74963 | 02854 | 044 | . 75002 | 02850 | 040 |
| 12 | . 54792 | 03713 | 135 | .64990 | 03714 | 116 | . 64957 | 03715 | 098 |
| 11 | . 54705 | 04.07 | 299 | .54755 | 04396 | 178 | . 56767 | 34399 | 154 |
| 10 | .44790 | 04314 | 299 | . 44 208 | 04814 | 260 | . 44970 | 04815 | 225 |
| 9 | . 55016 | 04880 | 528 | . 34973 | 04880 | 277 | . 54973 | 04877 | 243 |
| 8 | .25012 | 04646 | 357 | . 24997 | 04645 | 315 | . 24976 | 04645 | 271 |
| 7 | .15054 | 04081 | 329 | .15015 | 34678 | 594 | .14996 | 04076 | 290 |
| 6 | .10729 | 73625 | 287 | .10017 | 03624 | 408 | .10039 | 03627 | 385 |
| 5 | .06550 | 03203 | 535 | .06521 | 03198 | 354 | . 06536 | 03200 | 555 |
| 4 | .04959 | 02788 | 336 | .03999 | 02803 | 392 | .04025 | 02813 | 576 |
| 3 | .02050 | 07297 | 338 | .01935 | 02268 | 374 | .01985 | 05556 | 524 |
| 2 | .00597 | 01314 | . 393 | .00567 | 01305 | . 341 | .00578 | 01313 | .148 |
| 1 | .00057 | .00379 | .788 | .00065 | 00449 | .753 | .00050 | .00361 | . 699 |
| 45 | 00184 | .30727 | .028 | .00190 | .00749 | .410 | .00193 | .00757 | . 379 |
| 44 | .00575 | .01361 | .030 | .00623 | .01365 | .045 | . 33630 | .01368 | 060 |
| 43 | 1 .01223 | .01273 | 377 | .01209 | .01851 | 372 | .01265 | .01889 | 460 |
| 42 | .02705 | .02272 | 790 | .01983 | 86550. | 819 | .02012 | 11550. | 944 |
| 41 | .02983 | .02581 | 987 | .02991 | .02584 | -1.009 | . 02999 | .02583 | -1.070 |
| 40 | 04946 | 02066 | 943 | .04977 | .02967 | 990 | . 04995 | .02970 | -1.077 |
| 39 | .07443 | 1.03322 | 433 | .07488 | .03329 | 816 | .07482 | .03327 | -1.017 |
| 38 | .09994 | .03621 | 479 | .09991 | .03620 | 568 | .09990 | .03621 | 564 |
| 37 | . 13996 | .03005 | 549 | . 13985 | . 03994 | 581 | . 13976 | . 33995 | 279 |
| 36 | . 17979 | .04286 | 558 | .17999 | .04272 | 363 | . 17991 | . 34238 | 294 |
| 35 | . 2 2001 | .04515 | 584 | .22010 | .04514 | 299 | . 21990 | .34514 | 295 |
| 34 | . 25764 | .04681 | 403 | . 25976 | .04681 | 309 | . 25976 | . 34632 | 203 |
| 33 | . 29999 | .04800 | 295 | . 29994 | .04799 | 315 | . 29986 | .04800 | 282 |
| 37 | . 55775 | .06869 | 318 | .34008 | .04869 | 308 | . 33979 | . 34 868 | 269 |
| 51 | . 57786 | .04007 | 334 | . 37996 | .04891 | 278 | . 37976 | . 34892 | 260 |
| 30 | .41050 | .04867 | 127 | .41989 | .04867 | 285 | . 41 988 | .04868 | 263 |
| 53 | .45975 | .04789 | 310 | . 45975 | .04790 | 266 | .45970 | .04789 | 227 |
| 28 | . 40060 | .04650 | 268 | .47774 | .04649 | 228 | .49987 | .04649 | 202 |
| 27 | . 53950 | .04452 | 229 | .53988 | .04450 | 201 | .53975 | .04452 | 167 |
| 25 | . 57761 | .04214 | 184 | .57791 | .04210 | 152 | . 57985 | .04214 | 129 |
| 25 | .61997 | .03939 | 149 | .61970 | .03939 | 121 | .61976 | .03940 | 106 |
| 24 | .65969 | .03637 | 114 | .65979 | .03635 | 098 | .65966 | .03636 | 084 |
| 23 | .69970 | .03308 | 090 | .69976 | .03508 | 065 | .69979 | . 23308 | 060 |
| 22 | . 73740 | .07949 | 060 | .75970 | . 02946 | 145 | . 73980 | .02945 | 038 |
| 21 | . 77940 | .02567 | CSS | .77767 | .02567 | 011 | . 77742 | .02570 | 013 |
| 20 | . 81217 | .02157 | .021 | .81965 | .02154 | .028 | .81985 | .02150 | .015 |
| 19 | . 85955 | .01/09 | .064 | . 85 78 0 | .01707 | .064 | .85943 | .01712 | . 342 |
| 19 | . 89940 | .01246 | .104 | .89977 | .01241 | .102 | . 89761 | .01245 | .071 |
| 17 | .94777 | .00755 | .167 | .94861 | .00742 | .155 | .94959 | .00733 | .097 |
| 16 | .98506 | .70266 | . 223 | .9346? | .00272 | . 204 | . 98455 | .00274 | .127 |
| | • | • | | | | | | | |

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2307

MO = .8386 ALPHA = 2.06 REC = 11.72*10**6

| | SECTION | 1 | | SECTION | 2 | | SECTION | 5 | | SECTION | | |
|--|---|---|--|---|--|--|--|---|---|---|--|--|
| NP | x/L | 111 | CP | X/L | 2/1 | CP | X/L | 1/1 | CP | x/L | 2/1 | CP |
| 12 11 10 9 8 7 6 5 4 4 5 2 1 34 35 35 35 29 28 27 26 26 27 26 27 26 27 26 27 27 27 27 27 27 27 27 27 27 27 27 27 | . 950 YO . 91507 . 66503 . 66503 . 66504 . 64509 . 76504 . 62007 . 60016 . 600 | 00726 0219x 03587 04301 0477x 04889 04722 04194 02971 0268 01173 .00272 .00592 .02701 .03135 .02701 .03135 .034080 .04647 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .04687 .0472 .04687 .0472 .04687 .0472 | .105 -0.84 -1.94 -2.60 -2.50 -2.53 -14.6 -1.20 - | .94937 .31705 .66698 .56705 .26705 .26705 .16699 .01902 .00031 .00103 .00789 .01905 .03402 .05911 .09913 .14927 .19909 .29925 .34927 .44927 .45927 .59931 .44927 .45927 .59931 .69917 .77912 .84903 .98387 | 00735 02182 03579 04294 04769 04769 04706 04202 02958 02242 01261 .00277 .00553 .01531 .02632 .02674 .03113 .04671 .04649 .04798 .04649 .04798 .04649 .04798 .04649 .04798 .04649 .04798 .04685 .0468 | .139 -044 -170 -258 -310 -284 -253 -193 -142 -152 -430 -458 -758 -758 -758 -450 -453 -450 -453 -450 -453 -450 -453 -450 -453 -450 -453 -450 -453 -450 -453 -450 -453 -450 -450 -450 -450 -450 -450 -450 -450 | .94,999 .81986 .67008 .57033 .47037 .37009 .27010 .05516 .02610 .02591 .00591 .02036 .03598 .04022 .00914 .02356 .03508 .04022 .00914 .02356 .04022 .05024 .05026 . | - 00777 - 02152 - 03555 - 04272 - 047760 - 04890 - 04775 - 02275 - 01376 - 00317 - 00317 - 00317 - 003125 - 01640 - 02275 - 03125 - 03626 - 04078 - 04880 - 04 | .155 -023 -158 -238 -525 -257 -192 -112 -507 -122 -507 -463 -323 -1.025 -1.025 -505 -506 -575 -608 -523 -523 -1.02 | . 24 947 . 82225 . 67216 . 57230 . 47220 . 57235 . 17242 . 05017 . 10199 . 00611 . 00000 . 00219 . 00893 . 02012 . 035550 . 06011 . 10019 . 15024 . 20016 . 25021 . 35015 . 35015 . 35015 . 35015 . 35015 . 35015 . 35015 . 36018 . 37977 . 45019 . 50020 . 50030 . 60018 . 60018 . 79977 . 78012 . 85010 . 92005 . 98498 | 037 51 02125 035 57 04261 0475 5 04891 0475 5 04258 02274 02268 01355 00000 02761 027701 03127 04647 04647 04799 04647 04799 04647 04799 04835 04078 04078 03111 03222 04078 03111 03222 04078 04078 04078 05623 04078 05623 04078 05623 05623 064379 064379 064379 064378 064378 064078 06562 0756 | . 160 - 009 - 141 - 220 - 512 - 290 - 213 - 142 - 494 - 494 - 226 - 892 - 1, 124 - 1, 251 - 439 - 439 - 637 - 637 - 637 - 260 - 206 - 103 - 108 - 207 - 208 - 209 - 2 |
| | SECTION | 5 | | SECTION | | | SECTION | | | | | |
| NP | x/L | 7/1 | CP | X/L | 1/1 | CP | x/L | 1/1 | CP | | | |
| 15 14 15 11 10 9 5 7 6 5 4 4 4 3 7 7 6 5 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3 2 2 2 2 2 | 94974 84954 54993 44993 45993 44993 65912 | - 00731 - 01292 - 02951 - 01407 - 04494 - 04980 - 046481 - 03425 - 03728 - 01114 - 00777 - 01144 - 00777 - 01481 - 03425 - 01514 - 04780 - 04815 - 04816 - 04860 - 048 | - 153 - 062 - 154 - 285 - 284 - 303 - 319 - 250 - 105 - 106 - 107 - 106 - 079 - 484 - 900 - 1, 103 - 1, 103 - 1, 103 - 378 - 378 - 378 - 310 - 268 - 286 - 2 | - 40753 - 84034 - 64080 - 54055 - 54055 - 54055 - 54055 - 54057 - 15016 - 15016 - 15016 - 15016 - 10068 - 1006 | - 00784 - 01823 - 02854 - 03714 - 04870 - 04678 - 04678 - 04678 - 03624 - 03198 - 02803 - 01305 - 00749 - 01305 - 0130 | . 136 . 028 . 051 . 118 . 176 . 251 . 262 . 274 . 3517 . 257 . 256 . 217 . 434 . 729 . 313 . 059 . 490 . 101 . 101 . 100 . 997 . 101 . 100 . 997 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 292 . 293 . 283 . 294 . 124 . 101 . 609 . 1349 . 618 . 020 . 0389 . 143 | 04946 6495P 75002 6495P 75496P 75497 74497D 74970 10039 00536 04025 00193 00650 01265 02312 02999 04995 07482 07996 13976 13976 14985 13976 14985 13976 14985 13978 13978 13978 13978 13978 13978 14983 15978 15998 15978 15998 15978 15998 15978 15998 15978 15978 15978 15978 15978 15978 15978 15978 15978 15978 15978 15988 1597 | - 00735 - 01821 - 02850 - 03715 - 04578 - 04876 - 04876 - 04076 - 03627 - 03520 - 02813 - 02266 - 01313 - 02276 - 01313 - 02757 - 03527 - 0352 | | | | |

TABLE B1-13

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2308

CP

MO = .8395 ALPHA = 3.06 REC = 11.72*10**6

| | SECTION | , | | SECTION | 2 | | SECTION | 3 | | SECTION | |
|--|--|--|---|---|---|--|--|---|--|--|---|
| NP | x/L | 2/1 | CP | X/L | 1/1 | CP | x/L | 2/1 | CP | x/L | 2/1 |
| 12 11 10 9 8 7 6 6 5 4 4 3 3 2 2 1 3 3 3 3 3 2 2 2 2 2 2 2 2 2 2 | ,95010 ,81597 ,66593 ,56588 ,46599 ,56580 ,56580 ,56580 ,26579 ,02002 ,00536 ,00346 ,00216 ,00216 ,00346 ,00216 ,00346 ,00216 ,00346 ,0 | - 00 / 26 - 02 193 - 03 193 - 04 101 - 04 773 - 04 89 - 04 194 - 02 971 - 02 268 - 01 153 - 02 268 - 01 159 - 02 85 - 02 285 - 02 285 - 02 285 - 02 285 - 02 285 - 03 617 - 04 680 - 04 413 - 04 680 - 04 413 - 04 680 - 04 68 | .101 -079 -171 -229 -265 -215 -104 -092 -034 -439 -801 -444 -108 -707 -1009 -029 -465 -465 -465 -465 -465 -465 -547 -580 -597 -580 -597 -580 -597 -580 -597 -580 -597 -580 -597 -580 -597 -580 -597 -597 -580 -597 -597 -597 -597 -597 -597 -597 -597 | 94937 81705 66698 56705 66706 36706 26705 16699 01922 000526 0005 | 00735 02182 03579 04294 04769 04202 02428 02422 01261 00277 .00153 .02272 .01531 .02272 .02674 .03113 .04071 .04695 .04698 .04888 .04888 .04888 .049888 .04988 .04988 .04988 .04988 .04988 .04988 .04988 .04988 .049888 .049888 .049888 .049888 .04988 .04988 .04988 .04988 .04988 | .143 -036 -151 -228 -269 -233 -181 -130 -045 -007 -565 -781 -388 -256 -842 -1.127 -1.092 -488 -538 -5501 -550 -580 -647 -701 -374 -263 -010 -0109 -211 | 94999 81986 97068 97068 970768 97010 17010 17010 17010 100391 10042 10022 10029 15032 10029 1003 | 00737 02152 03553 04272 04700 04890 04274 02275 01526 01526 01526 01640 02273 01526 01640 02273 01640 02273 04800 04678 04879 0487 | .157 -0145 -145 -213 -2279 -270 -196 -196 -326 -5752 -324 -718 -1.140 -1.941 -544 -594 -664 -692 -725 -330 -205 -301 -236 -205 -302 -3032 | .94937 82223 67214 57233 47233 47233 47233 17242 03017 00019 | 00731 02125 03537 04261 04275 04291 04273 04288 02268 01355 00000 00737 01419 02276 02701 03623 04678 04647 04679 04879 |
| | SECTION | . 5 | | SEC 1101 | 1 6 | | SECTION | 7 | | | |
| NP | X/L | 1/1 | CP | X/L | 2/1 | CP | X/L | 2/1 | CP | | |
| 15 14 13 11 10 0 9 8 7 7 6 6 5 5 4 4 1 4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 | 94977 8494 75003 64988 54983 44990 35016 15054 10029 06550 04030 00587 00184 00676 01298 00706 01298 04040 07448 07994 13936 17979 27001 2798 47993 13936 17979 27001 2798 47976 47977 27001 270 | - QC731 - Q1822 - Q2851 - Q3713 - Q4497 - Q4880 - Q4646 - Q4681 - Q3625 - Q37263 - Q | . 150 . 030 . 030 . 062 . 130 . 270 . 288 . 277 . 182 . 121 . 078 . 078 . 078 . 181 . 576 . 182 . 181 . 576 . 182 . 181 . 140 . 1 194 . 1 194 . 1 194 . 1 195 . 1 187 . 208 . 238 . 239 . 238 . 239 . 238 . 239 . 238 . 239 . 239 | . 04953 . 84934 . 74963 . 64980 . 54955 . 64970 . 24997 . 15016 . 10019 . 00521 . 00597 . 00063 . 00190 . 00623 . 01209 . 01985 . 00567 . 00063 . 01995 . 00991 . 04972 . 07488 . 07991 . 07996 . 07991 . 07996 . 0799 | - 00734 - 01823 - 02854 - 04796 - 04814 - 04496 - 04678 - 04078 - 03624 - 03198 - 02803 - 02268 - 01305 - 00749 - 01365 - 01365 - 01365 - 01469 - 04681 - 04799 - 04861 - 04799 - 04669 - 04799 - 0479 | .126 .021 .056 -121 .256 -301 .293 -241 -170 -158 .510 .690 .229 -152 -598 -1196 -1227 -1134 -1136 -1227 -1136 -1227 -1136 -1227 -1136 -1227 -1218 -242 -158 -158 -179 -179 -179 -179 -179 -179 -179 -179 | .94946 .84958 .75002 .64957 .24967 .34773 .24976 .14996 .10039 .00578 .0 | - 00735 - 01821 - 02850 - 03715 - 04498 - 04879 - 04645 - 04076 - 03627 - 03627 - 03621 - 02813 - 02266 - 01313 - 02266 - 01313 - 02266 - 01313 - 02266 - 01313 - 02266 - 01313 - 02266 - 01313 - 02266 - 04808 - 0480 | . 070 - 009 - 672 - 116 - 165 - 217 - 236 - 2518 - 342 - 5518 - 342 - 576 - 336 - 227 - 315 - 636 - 227 - 315 - 636 - 227 - 254 - 351 - 1018 - 1, 291 - 1, 275 - 1, 209 - 2, 245 - 2, 2 | | |

TABLE B1- 14

The state of the s

TEST 2563

MO = .9359 ALPHA = 4.08 REC = 11.81*10**6

| | SECTION | , | | SECTION | 2 | | SECTION | 3 | | SECTION | 4 | |
|--|--|--|---|--|---|--|--|--|--|--|--|---|
| NP | x/L | 1/1 | CP | X/L | 2/1 | CP | X/L | 2/,L | C P | X/L | 2/1 | (0 |
| NP 12 110 9 8 7 6 5 5 4 3 3 2 2 1 3 3 3 2 2 2 2 2 1 2 3 2 2 2 2 | 4/L - 9(13) - 91597 - 46591 - 36588 - 46599 - 26579 - 16593 - 00014 - 00216 - 00266 - 02059 - 00593 - 00014 - 00216 - 02059 - 00593 - 00014 - 00216 - 02059 - 00593 - 00014 - 00216 - 02059 - 00593 - 00014 - 00016 - 00016 | 2/L - 02 726 - 02 193 - 03 193 - 03 193 - 04 173 - 04 173 - 04 173 - 04 173 - 04 173 - 02 268 - 01 133 - 00 292 - 01 193 - 01 193 - 02 1597 - 02 1 | CP .097 .069 .167 .110 .113 .018 .088 .088 .089 .622 .772 .362 .268 .779 .1161 .1112 .540 .505 .550 .550 .550 .550 .550 .550 | 24 257 81 705 66608 56 705 166705 166705 166705 104909 101925 101 | - 00735 - 02182 - 03579 - 04294 - 04769 - 04496 - 04205 - 02242 - 01261 - 00277 - 00553 - 01351 - 0222 - 01351 - 02406 - 04405 - 04405 | - 146 027 - 131 - 192 - 182 - 182 - 183 - 183 - 118 - 195 - 136 - 354 - 943 - 1 212 - 192 - 1 991 - 902 - 542 - 603 - 658 - 640 - 740 - 376 - 376 - 376 - 376 - 376 - 376 - 376 - 198 - 109 | 24 999 81 986 67008 57033 57033 14037 37009 17010 17010 00042 00042 00042 10029 10029 25024 35008 45030 4503 | 2/L -00737 -02152 -05553 -04272 -05553 -04766 -04890 -04716 -04224 -02275 -0317 -0317 -03806 -01640 -02273 -031128 -03626 -04411 -04800 | . 159 . 159 . 109 . 128 . 186 . 218 . 186 . 218 . 140 . 086 . 151 . 557 . 709 . 228 . 407 . 1.009 . 1.275 . 1.29 . 1.149 . 1.080 . 1.0 | 94947 84293 67216 67216 57230 147229 57239 17242 05017 01999 00611 00000 00210 00893 02012 03550 06011 10019 15024 20016 25021 39047 5020 50350 5040 | 7/L0075102125035370426104753048910472304284022680155500000078701619027010312703625040780441004410048504887048870488804 | . 140 - 000 - 124 - 122 - 261 - 242 - 178 - 082 - 178 - 179 - 710 - 466 - 1. 278 - 1. 262 - 1. 124 - 1. 262 - 1 |
| | SECTION | | | SECTION | | | SECTION | | | | | |
| NP 15 | .94977 | 2/L 00731 | .137 | x/L .94953 | 7/L 00734 | .111 | x/L .94946 | 7/L 00735 | CP .043 | | | |
| 114 113 110 9 8 7 6 5 5 4 4 5 7 6 5 6 5 6 5 6 5 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 | 7,501 3 4400 3 5016 4400 3 5016 4400 3 5016 4400 3 5016 4600 3 501 | - 01922 - 02931 - 02931 - 04891 - 04681 - 04681 - 04681 - 02282 - 03208 - 02282 - 02282 - 01314 - 01872 - 01361 - 0272 - 01361 - 01872 - 02366 - 03362 - 03362 - 03362 - 04515 - 0480 - | -125 -061 -125 -256 -256 -262 -116 -027 -021 -109 -682 -287 -1269 | - 4493 - 4493 - 4498 - 4499 - 4499 - 15016 - 10019 - 05529 - 01985 - 00193 - 0 | | - 1009 - 1064 - 124 - 174 - 1237 - 260 - 282 - 243 - 165 - 085 - 061 - 049 - 530 - 686 - 1277 - 686 - 1277 - 1279 - 1. | - 44958 - 75002 - 64957 - 54967 - 54967 - 14996 - 10039 - 04025 - 01985 - 01985 - 00193 - 0050 - 0050 | - 01821 - 02850 - 03715 - 043715 - 043715 - 044376 - 044776 - 04645 - 04076 - 03627 - 03200 - 02813 - 02266 - 01313 - 00361 - 00757 - 01368 - 014808 - 04800 - 04900 - 04900 | - 033 2 - 134 - 173 2 - 134 - 173 2 - 275 - 243 - 294 - 303 - 298 - 210 5 - 21 | | | |

TABLE B1- 15

MO = .8447 ALPHA = 5.06 REC = 11.78*10**6

| 11 | 2/L CP00731 .133 .02125012 .03537126 .04261191 .04753247 .04891210 .04723133 .04238029 .02974 .137 .02268 .253 .01355 .098 .00000 .675 |
|--|--|
| 12 .9503000726 .097 .9493700735 .144 .9499900737 .158 .94937 11 .8159702193002 .8170502182023 .8198602152010 .82225 10 .6659305587129 .6669305579119 .6700805553122 .67216 9 .5658804501169 .5670504294173 .5703304272172 .57230 8 .4659904707184 .4670504769195 .4703704760212 .47220 7 .3658004889130 .3670504889146 .3700904890181 .37235 6 .2657904702068 .2670504706081 .2701004716096 .27230 | .00731 .133 .02125012 .03537126 .04261191 .04753247 .04891210 .04723133 .04238029 .02974 .137 .02268 .253 .01355 .698 .00000 .675 |
| 11 | .02125012 .05537 -126 .04261191 .04753247 .04891210 .04723133 .04238029 .02974 .137 .02268 .253 .01355 .098 .00000 .675 |
| 11 | .02125012 .05537 -126 .04261191 .04753247 .04891210 .04723133 .04238029 .02974 .137 .02268 .253 .01355 .098 .00000 .675 |
| 10 .6659303587129 .6669803579119 .6700803553 -122 .67216 - 9 .5658804501169 .5670504294173 .5703304272 -172 .57230 - 8 .4659904773184 .4670504769195 .6703704769212 .47220 - 7 .3658004889130 .3670504889146 .3700904890181 .37235 - 6 .2657904702068 .2670504706081 .2701004716096 .27230 - | .03537126 .04261191 .04753247 .04891210 .04723133 .04238029 .02974 .137 .02268 .253 .01355 .098 .00000 .675 |
| 9 .5658804501169 .5670504294173 .5703304272172 .57230 - 8 .4659904773184 .4670504769195 .4703704760212 .47220 - 7 .3658004889130 .3670504889146 .3700904890181 .37255 - 6 .2657904702068 .2670504706081 .2701004716096 .27230 - | |
| 8 4659904773184 4670604769195 4703704760212 47220 - 7 3658004889130 3670504889146 1700904890181 37235 - 6 2657904702068 2670504706081 27701004716096 27230 - | -04753 -247 -04891 -210 -04723 -133 -04238 -029 -02974 137 -02268 253 -01355 698 -00000 675 -00787 161 |
| 7 .3658004889130 .3670504889146 .3700904890181 .37255 - 6 .2657904702068 .2670504706081 .2701004716096 .27230 - | - 04891 210 - 04723 133 - 04238 029 - 02974 - 137 - 02268 - 253 - 01355 - 698 - 00000 - 675 - 00787 - 161 |
| 6 .2657904702068 .2670504706081 .2701004716096 .27230 - | 04723133 04238029 02974 .137 02268 .253 01355 .698 00000 .675 00787 .161 |
| | 04238029 02974 .137 02268 .253 01355 .698 00000 .675 00787 .161 |
| | 02974 .137 02268 .253 01355 .698 00000 .675 00787 .161 |
| / 0/007 00014 400 0/000 | .02268 .253 .01355 .698 .00000 .675 .00787 .161 |
| 1 03003 03340 400 4000 | .01355 .698 .00000 .675 .00787 .161 |
| 1 2000 | .00000 .675 .00787 .161 |
| | .00787 .161 |
| 1/ 2021/ 2020 | .00787 .161 |
| 01200. 001. 00000. 13300. | |
| 11 11111 11111 | .01619520 |
| 1 | .02276 -1.107 |
| W | .62701 -1.327 |
| | .03127 -1.298 |
| 20 10017 | .03623 -1.224 |
| | .04078 -1.179 |
| 24 16310 04443 | .04410 -1.153 |
| 1,001 | .04647 -1.140 |
| 1, 1,000 ,0001 | .06799 -1.131 |
| | .64879742 |
| 11 11011 11011 11011 | .04885570 |
| 1,000 | .04813520 |
| | .04048447 |
| | .04393348 .04078247 .03711144 |
| | .04078247 |
| | .03711144 |
| | .03222061 |
| | .02562 .018 |
| 01000. [(0,0) (1010. 1000) | .01815 .065 |
| | .01023 .121 |
| 13 -98519 .00265 .173 .98387 .00283 .215 .98611 .00251 .228 .98498 | .00267 .172 |
| SECTION S SECTION 6 SECTION 7 | |
| NP X/L Z/L CP X/L Z/L CP X/L Z/L CP | |
| 15 .9497700731 .100 .9495500734 .085 .9494600735 .021 | |
| 14 .8495401822 .005 .8493401823008 .8495801821058 | |
| 13 .7500302851070 .7496302854078 .7500202850118 | |
| 12 .6498903713132 .6498003714135 .6495703715160 | |
| 11 .5498504397262 .5495504396184 .5496704398201 | |
| 10 .4499004814262 .4499804814261 .4497004816249 | |
| 9 .3501604880250 .3499004880285 .3497304879312 | |
| 3 .2501204646192 .2499704645277 .2497604645313 | |
| 7 .1505404081064 .1501604078201 .1499604076290 | |
| 6 .1002903625 .012 .1001903624109 .1003903627272 | |
| 5 .0655003203 .100 .0652103198021 .0653603200240 | |

| NP | X/L | 1/1 | CP | X/L | 1/L | CP | X/L | 1/1 | CP |
|----|----------|---------|--------|---------|---------|--------|----------|----------|--------|
| 15 | .94977 | 00731 | .100 | .94953 | 00734 | .085 | .94946 | 00735 | .021 |
| 14 | . 84954 | 01822 | .005 | . 84934 | 01823 | 008 | .84958 | 01821 | 058 |
| 13 | . 75003 | 02851 | 070 | .74965 | 02854 | 078 | . 75002 | 02850 | 118 |
| 12 | .64983 | 03713 | 132 | .64980 | 03714 | 135 | . 64957 | 03715 | 160 |
| 11 | -54983 | 04397 | 262 | .54955 | 04396 | 184 | .54967 | 04398 | 201 |
| 10 | .44990 | 04814 | 262 | .44998 | 04814 | 261 | . 44970 | 04816 | 249 |
| 9 | . 35016 | 04880 | 250 | . 34993 | 04880 | 285 | . 34973 | 04879 | 312 |
| 8 | . 25012 | 04646 | 192 | . 24997 | 04645 | 277 | . 24976 | 04645 | -, 313 |
| 7 | .15054 | 04081 | 064 | . 15016 | 04078 | 201 | .14996 | 04076 | 290 |
| 6 | .10029 | 03625 | .012 | .10019 | 03624 | 109 | . 10039 | 03627 | 272 |
| 5 | .06550 | 03203 | .100 | .06521 | 03198 | 021 | .06536 | 03200 | 240 |
| 4 | .04030 | 02788 | . 100 | .03997 | 02803 | .016 | .04025 | 02813 | 163 |
| 5 | .02030 | 02282 | . 203 | .01985 | 02268 | .144 | .01985 | 02266 | 012 |
| 2 | .00587 | 01314 | .674 | .00567 | 01305 | .589 | .00578 | 01313 | . 691 |
| 1 | .00057 | .00379 | .644 | .00065 | .00449 | .604 | .00050 | .00361 | . 559 |
| 45 | .00184 | .00727 | 353 | .00193 | .00749 | .101 | .00193 | .00757 | .063 |
| 44 | .00626 | .01361 | 353 | .00623 | .01365 | 335 | .00630 | .01368 | 602 |
| 43 | .01229 | .01873 | 719 | .01209 | .01851 | 733 | .01265 | .01889 | 789 |
| 42 | .02006 | .02272 | -1.108 | .01993 | .02268 | -1.092 | . 02012 | .02277 | -1.139 |
| 41 | .02938 | .02581 | -1.298 | .02991 | -02584 | -1.302 | . 02999 | .02583 | -1.349 |
| 40 | -04966 | -02966 | -1.327 | .04972 | .02967 | -1.349 | . 04995 | .02970 | -1.404 |
| 39 | .07448 | .03322 | -1.285 | .07488 | .03329 | -1.315 | .07482 | .03327 | -1.396 |
| 38 | .09994 | .03621 | -1.250 | . 09991 | .03620 | -1.280 | . 09990 | .03621 | -1.336 |
| 37 | .13996 | .03995 | -1.219 | . 15985 | .03994 | -1.274 | -13976 | .03995 | -1.049 |
| 36 | 17979 | .04286 | -1.197 | .17999 | .04272 | -1.288 | . 17991 | .04288 | 986 |
| 35 | 10055 | .04515 | -1.185 | .22010 | -04514 | -1.080 | . 21990 | .04514 | 949 |
| 34 | .25764 | .04681 | -1.045 | . 25996 | .04681 | 735 | . 25976 | .04682 | 897 |
| 33 | . 22988 | - 64900 | 630 | . 29974 | .04799 | 613 | . 29986 | .04800 | 536 |
| 32 | . 33985 | .94869 | 581 | . 34008 | .04869 | 460 | . 33979 | . 04 868 | 516 |
| 31 | . 37986 | .04892 | 549 | . 37996 | .04891 | 319 | . 37976 | .04892 | 212 |
| 30 | . 41959 | .04867 | 479 | .41985 | .04867 | 253 | .41988 | .04868 | 254 |
| 29 | .45975 | .04789 | 394 | .45976 | .04790 | 233 | .45970 | .04789 | 259 |
| 28 | 49760 | .04650 | 292 | .49994 | -04649 | 211 | .49987 | .04649 | 271 |
| 27 | .53959 | .04452 | 218 | .53989 | . 04450 | 198 | .53975 | .04452 | 275 |
| 26 | .57961 | .04214 | 148 | .57991 | .04210 | 155 | . 57985 | .04214 | 320 |
| 25 | .61987 | .03978 | 106 | .61970 | .03939 | 151 | .61976 | .03940 | 387 |
| 24 | .65968 | .03637 | 072 | . 65979 | . 03635 | 112 | . 05966 | .03636 | 447 |
| 23 | .69970 | .03308 | 041 | -69975 | .03308 | 082 | .69979 | .03308 | 476 |
| 22 | . 73940 | .02949 | 020 | . 75973 | .02946 | 376 | . 73980 | . 32946 | 509 |
| 21 | .77960 | .02567 | .008 | -77962 | .02567 | 054 | .77942 | .02570 | 533 |
| 20 | . 31937 | .02157 | .037 | . 81965 | .02154 | 327 | . 81 785 | .02150 | 544 |
| 19 | .85955 | .01709 | .061 | .85980 | .01707 | 006 | . 85943 | -01712 | 528 |
| 18 | 82940 | .01746 | .088 | . 39977 | -01241 | .012 | . 89961 | .01243 | 471 |
| 17 | .94727 | .00755 | .125 | .94961 | .00742 | .058 | -94959 | .00733 | 400 |
| 16 | . 98506 | 99200 | .159 | .98462 | .00272 | .115 | .98455 | .00274 | 224 |
| 10 | . 703110 | .00.00 | . 134 | | | , | , | | |

TABLE B1- 16

CP

. 074
- 034
- 1035
- 168
- 128
- 129
- 208
- 159
- 356
- 616
- 658
- 616
- 618
- 1288
- 1 288
- 1 208
- 1 288
- 597
- 486
- 618
- 658
- 618
- 658
- 618
- 658
- 6597
- 486
- 618
- 658
- 618
- 658
- 6597
- 486
- 618
- 658
- 6597
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557
- 6557

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2565

MO = .8372 ALPHA = 6.06 REC = 11.71*10**6

| | SECTION | , | | SECTION | 2 | | SECTION | | | SECTION | 4 | |
|-----|------------------|------------|------------------|------------------|---------|--------|------------|--------|-------------------|---------|---------|--|
| | | | | | | | | | | | | |
| NP | */L | 2/1 | 43 | X/L | 1/1 | CP | XIL | 1/1 | CP | X/L | 111 | |
| 12 | .95030 | 00726 | .096 | .94937 | 00735 | .139 | .94999 | 00737 | .147 | .94937 | 00731 | |
| 11 | .91597 | 02193 | 050 | .81705 | 02182 | 010 | .81986 | 02152 | 008 | .82223 | 02125 | |
| 10 | .66593 | 03587 | 099 | .56705 | 03579 | 095 | .67008 | 03553 | 101 | .67216 | 03537 | |
| 8 | -46599 | 04773 | 138 | .46706 | 04769 | 147 | .47037 | 04760 | 165 | .47220 | 04753 | |
| 7 | .36583 | 04889 | 084 | . 36 705 | 04889 | 094 | . 37009 | 04890 | 130 | .37235 | 04891 | |
| 5 | .16594 | 04702 | 022 | .26705 | 04706 | 026 | .17010 | 34716 | 040 | .27250 | 04723 | |
| 2 | .04993 | 02971 | .066 | .16697 | 02958 | .211 | .05016 | 02975 | .054 | .05017 | 04238 | |
| 3 | .02002 | 02268 | .296 | .01922 | 02242 | . 330 | .02010 | 02275 | . 361 | .01999 | 02268 | |
| 5 | .00593 | 01333 | .733 | .00520 | 01261 | .751 | -00591 | .01326 | .757 | .00611 | 01355 | |
| 34 | .00034 | .00292 | .702 | .00031 | .00277 | .665 | .00042 | .00317 | .067 | .00000 | .00000 | |
| 33 | .00366 | .01592 | 428 | .00789 | .01531 | 526 | .00914 | .01640 | -, 579 | .00893 | .01619 | |
| 32 | .02037 | .02285 | 971 | .61906 | .02232 | -1.396 | . 02036 | .02273 | -1.144 | . 02012 | .02276 | |
| 31 | .03525 | .02701 | -1.292 | .03402 | .02674 | -1.333 | .03508 | .02698 | -1.598 | .03530 | .02701 | |
| 30 | .06016 | .03130 | -1.274 | .05911 | .03113 | -1.325 | .06022 | .33128 | -1.376 -1.307 | .06011 | .03127 | |
| 29 | -15037 | .04080 | 706 | -14927 | .04071 | -1.182 | . 15032 | .04078 | -1.247 | - 15024 | .04078 | |
| 27 | .20044 | .04413 | 731 | .19939 | .04405 | -1.151 | . 22029 | .04411 | -1.221 | .20016 | .04413 | |
| 5.6 | . 250 19 | .04647 | 627 | . 25080 | .04649 | -1.109 | . 25024 | .04667 | -1.200 | . 25021 | .04647 | |
| 25 | .30050 | .04800 | 619 | . 34927 | .04798 | 777 | . 35024 | .04800 | -1.191 | .30021 | .04799 | |
| 23 | .40047 | .04886 | 620 | .39931 | .04886 | 718 | .40037 | .04886 | 687 | .39977 | .04885 | |
| 5.5 | .45030 | .04912 | 649 | .44397 | .04815 | 744 | - 45016 | .04813 | 589 | .45019 | .04813 | |
| 51 | .50039 | .04648 | 644 | .49927 | .04652 | 787 | .50024 | .04647 | 486 | .50020 | . 04648 | |
| 50 | .55025 | .04394 | 665 | .54927 | .04398 | 382 | .55042 | .04392 | 146 | .55033 | .04393 | |
| 18 | .65032 | .03711 | 527 | .64917 | .03719 | 164 | .65026 | .03711 | 226 | .65015 | .03711 | |
| 17 | .71026 | .03219 | 223 | .73397 | .03229 | 116 | .71034 | .03218 | 111 | .76977 | .03222 | |
| 16 | .78026 | .02561 | 144 | .77912 | .02572 | 357 | .78008 | .02563 | 040 | . 78012 | . 02562 | |
| 15 | .95021 | .01814 | 051 | .84903 | .01826 | .022 | .85001 | .01815 | .027 | .85010 | .01815 | |
| 13 | .98518 | .00265 | .169 | .93 58 7 | .00283 | .209 | .98611 | .00251 | . 211 | .98473 | .00267 | |
| | | | | | | | | | | | | |
| | SECTION | | | SECTION | | | SECTION | , | | | | |
| | | | | | | | | | | | | |
| NP | X/L | 7/1 | CP | X/L | 2/1 | CP | X/L | 1/1 | CP | | | |
| 15 | .94977 | 00731 | .063 | .94953 | 00734 | .051 | .94946 | 00735 | 005 | | | |
| 14 | . 34954 | 01822 | 024 | .84934 | 01823 | 034 | . 84 958 | 01821 | 085 | | | |
| 13 | .75003 | 02851 | 087 | .74955 | 02854 | 396 | .75002 | 02850 | 147 | | | |
| 12 | .64988 .54985 | 03713 | 141 | .64980 .54955 | 03714 | 152 | .64957 | 03715 | 187 | | | |
| 10 | .44990 | 04814 | 240 | .44999 | 04814 | 258 | .44970 | 04815 | 264 | | | |
| 9 | . 35016 | 04880 | 210 | .34993 | 04880 | 262 | . 54973 | 04879 | 307 | | | |
| 8 | .25012 | 04646 | 139 | . 15015 | 04645 | 239 | . 14996 | 04645 | 288 | | | |
| 6 | .10029 | 01625 | -074 | .10019 | 03624 | 049 | .10039 | 03627 | 227 | | | |
| 5 | .06550 | 03203 | .185 | .06521 | 03198 | .044 | . 06 5 3 6 | 03200 | 170 | | | |
| • | .04030 | 02788 | .184 | .03999 | 02863 | .096 | .04025 | 02813 | 083 | | | |
| ź | .00597 | 01514 | .715 | .00567 | 01305 | .622 | .00578 | 01313 | .515 | | | |
| 1 | .00757 | .00379 | .580 | .00069 | .00449 | .543 | .00050 | .00361 | .500 | | | |
| 45 | .00184 | .00727 | 469 | .00190 | .00749 | 004 | .00193 | .00757 | 037 | | | |
| 43 | .01228 | .01873 | 834 | .01207 | .01851 | 842 | .01265 | .01889 | 894 | | | |
| 42 | -02006 | .02272 | -1.202 | -01983 | 89220 | 842 | .02012 | .02277 | -1.233 | | | |
| 41 | .02999 | .02581 | -1.392 | .02991 | .02584 | -1.394 | .02999 | .02585 | -1.436 | | | |
| 39 | .07449 | .03322 | -1.422 | .07485 | .03329 | -1.441 | .04995 | .02970 | -1.492 | | | |
| 39 | .09394 | .03621 | -1.352 | .09991 | .03620 | -1,382 | . 09996 | .03621 | -1.424 | | | |
| 37 | .13786 | .03995 | -1.322 | .15983 | .03994 | -1.374 | .13976 | .03995 | -1.117 | | | |
| 55 | . 22001 | .04586 | -1.296 -1.218 | .17999 | .04272 | -1.212 | . 17991 | .04288 | -1.059 | | | |
| 54 | . 25964 | .04681 | 844 | .25995 | . 34681 | 774 | .25976 | .04682 | 742 | | | |
| 35 | . 29989 | .04800 | 663 | . 29994 | .04799 | 626 | . 29986 | .04800 | 441 | | | |
| 32 | .33995 | .04869 | 577 | .34008 | .04869 | 458 | . 33979 | .04868 | 267 | | | |
| 30 | .41959 | .04867 | 412 | .41985 | .04867 | 281 | .41988 | .04892 | 249 | | | |
| 29 | -45775 | .04789 | 343 | .45975 | .04790 | 256 | .45970 | .04787 | 290 | | | |
| 28 | .49940 | .04450 | 275 | . 69996 | .04649 | 238 | .49987 | .04649 | 306 | | | |
| 27 | .53959 | .04452 | 233 | .53988 | .04450 | 227 | .53775 | .04452 | 307 | | | |
| 25 | . 61987 | .03938 | 161 | .61970 | .03939 | 175 | .61976 | .03940 | 407 | | | |
| 24 | . 65968 | .03437 | 123 | .65979 | .03635 | 156 | . 65966 | .03636 | 480 | | | |
| 23 | .73940 | .02308 | 073 | .69976 | .03308 | 126 | . 69979 | .03308 | 527 | | | |
| 21 | -77940 | .02567 | 045 | .77962 | .02567 | 104 | .73980 | .02946 | -,580 | | | |
| 20 | . 81937 | .07157 | 008 | .81965 | .02154 | 382 | . 81985 | .02150 | 579 | | | |
| 19 | .85955 | .01709 | .010 | .85980 | .01707 | 064 | . 35943 | .01712 | 542 | | | |
| 19 | .94727 | .01246 | .074 | .94861 | .01241 | 043 | . 49961 | .00733 | 469 360 214 | | | |
| | | . 0.,, , , | | | | | | .00.33 | | | | |
| 10 | . 99506 | .00266 | .103 | .98452 | .00272 | .052 | . 98455 | .00274 | -,214 | | | |

TABLE B1- 17

TEST 2300

MO = .9840 ALPHA = .03 REC = 11.71*10**6

| | SECTION 1 | | | SECTION | , | | SECTION | | | SECTION | | |
|--|--|---|--|---|--|--|--|--|--|---|--|---|
| NP | X/L | 2/1 | CP | X/L | 2/1 | CP | K/L | 1/1 | CP | X/L | 2/1 | CP |
| 12 11 10 9 8 7 6 6 5 4 3 3 3 3 3 3 3 3 2 2 3 3 3 3 3 2 2 3 2 3 | .950 NO .81597 .66593 .56588 .66590 .36580 .26570 .00585 .002072 .00586 .02216 .00386 .02216 .00386 .02216 .00386 .02216 .03525 .04016 .04016 | 00726 02195 02195 04301 04703 04889 04794 02268 01592 .00292 .00302 .01592 .02285 .02701 .03617 .04687 .04880 .04812 .04875 .04875 .04876 | .115 -107 -323 -481 -411 -341 -341 -356 -276 -276 -518 -476 -519 -378 -237 -211 -221 -221 -275 -290 -324 -407 -479 -505 -404 -479 -505 -404 -4062 -0059 -180 | . 94.937 -81.705 -66.98 -56.705 -66.705 -26.70 | 00735 02182 03579 04294 04769 04769 04708 02242 01264 00277 00553 01531 02232 02674 03113 04671 04679 04683 | .160031205582494358373303373347461289286 | 94,999 41986 47008 57033 47037 47037 47010 45516 42010 40591 40010 40591 40010 40591 40010 40591 40010 40591 40010 40591 40010 40591 40010 | 00 7 37 02 152 03 553 04 272 04 760 04 780 04 716 02 275 01 326 02 275 01 326 02 31 28 03 626 04 678 04 679 04 879 04 879 05 87 | .181 .013 -131 -632 -550 -408 -322 -408 -322 -408 -323 -606 -471 -310 -345 -345 -345 -345 -345 -345 -345 -345 | 94997 8223 67216 57230 47220 47220 47220 17242 05017 01999 00011 00000 00210 00893 02012 035350 06011 10019 15024 20016 25021 350015 35015 35077 45029 55033 60018 65018 65017 70877 778012 85010 92005 98498 | 00751 02125 03557 04261 04751 04761 04723 02268 01355 00000 00787 01619 02701 03623 0478 0478 0479 04885 04078 040 | . 188 . 029 . 029 . 256 . 516 . 511 . 445 . 531 . 445 . 531 . 445 . 532 . 532 . 542 . 688 . 519 . 688 . 519 . 645 . 516 . 516 . 516 . 516 . 688 . 516 . 688 . 688 |
| | SECTION | 5 | | SECTION | 6 | | SECTION | 7 | | | | |
| NP | */1 | 2/1 | CP | X/L | 2/1 | CP | X/L | 2/1 | CP | | | |
| 1541321109 | 94277 -4457 -4470 -4470 -4470 -4470 -4470 -4470 -4470 -4470 -4470 -4570 | - 007731 - 01922 - 079713 - 079713 - 04874 - 04874 - 04876 - 04646 - 040781 - 035223 - 01376 - 01376 - 01376 - 01376 - 01376 - 03522 - 01363 - 02486 - 03522 - 04575 - 04666 - 04767 - 04767 - 04767 - 04767 - 04767 - 04767 | 181 G64 C77 -089 -619 -619 -619 -516 -556 -556 -556 -556 -577 -576 -576 -577 -576 -577 -57 | . 94.95 5 . 44.93 6 . 44.93 7 . 44.99 7 . 24.99 7 . 15.01 6 . 10.01 9 . 10.05 21 . 10.01 9 . 10.05 21 . 10.01 9 . 10.05 21 . 20.05 2 | - 00734 - 01823 - 02854 - 037396 - 04874 - 04880 - 04645 - 03198 - 02268 - 01305 - 02268 - 01305 - 02268 - 01305 - 0266 - 01305 - 0268 - 01305 - 0268 - 0268 - 0268 - 0268 - 0268 - 0268 - 0268 - 0268 - 0276 - 03329 - 03620 - 04679 - 04689 - 04689 | .172 .064 .017 .017 .018 .1207 .5569 .470 .651 .264 .768 .767 .519 .1804 .748 .6510 .5555 .264 .768 .7681 .7 | 94946 84958 75002 64957 54967 14976 10996 100578 00050 00193 | 007350182102850037380487804878048780407603620028130226601313003610036 | . 151 - 0013 - 0177 - 1795 - 4640 - 6259 - 8188 - 1509 - 4898 - 2705 - 6337 - 6488 - 5159 - 4970 - 4278 - 2112 - 1042 - 1079 - 0638 - 0100 - 0 | | | |

TABLE B1-18

CP

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2301

MO = .9833 ALPHA = 1.08 REC = 11.77*10**6

| | SECTION | | | SECTION | , | | | | | | | |
|---|---|---|---|--|---|---|---|---|---|--|--|--|
| | | | | | | ** | SECTION | | | 2EC110A | | |
| NP 12 111 10 9 8 7 6 5 4 3 2 1 34 33 2 29 29 27 26 26 21 20 19 11 11 15 14 | x/L - 95050 - 11597 - 36593 - 36593 - 36593 - 36593 - 36593 - 36593 - 36593 - 36993 - | 2/L - 00726 - 02193 - 07527 - 04301 - 04702 - 04194 - 02971 - 02268 - 00292 - 01333 - 00292 - 015802 - 015802 - 016802 - 04802 | CP | | 2/L00735021820357704294047690470604706042020224200277 .00553 .01261 .00277 .01553 .01613 .04613 .04640 .04798 .04886 .04878 .04886 .04878 .04898 | CP -155 -047 -201 -501 -453 -256 -257 -256 -253 -307 -400 -844 -021 -551 -803 -358 -358 -358 -3594 -417 -488 -553 -591 -614 -628 -492 -152 -060 -028 -125 -200 | | 2/L00 73702152042720427204760044760427604276031701806022750132603170180602478036260407803626040780487904886048730 | CP -175 -002 -150 -488 -503 -441 -542 -272 -287 -418 -828 -535 -038 -553 -750 -450 -450 -474 -475 -538 -569 -605 -608 -200 -079 -004 -068 -147 -241 | 94937 82223 67216 57250 47223 37235 17242 05017 00000 00213 00213 00213 00412 00501 00213 00412 00501 00503 00611 10019 15024 20016 25021 35015 39977 45009 50020 55043 66018 66018 66018 66018 66018 66018 670977 78012 85019 92005 98498 | -00751 -02125 -03557 -04215 -04755 -04397 -04725 -04238 -02229 -01555 -00000 -0767 -01619 -0276 -0276 -0276 -0276 -0276 -03623 -04078 -04879 -04885 -04078 -04879 -04885 -04078 -04788 -04788 -04788 -04788 -03711 -03622 -02552 -07885 -04078 -03711 -03522 -02552 -07885 -04078 -03711 -03522 -02552 -07885 -04078 -03711 -03522 -02552 -07885 -04078 -03711 -03522 -02552 -07885 -00257 | |
| | SECTION | | | SECTION | | | SECTION | , | | | | |
| NP | X/L | 2/1 | CP | X/L | 1/1 | CP | X/L | 2/1 | CP | | | |
| 15 14 5 2 1 1 1 1 0 9 8 7 6 5 4 3 2 1 1 5 4 4 3 2 1 1 1 1 0 9 8 7 6 5 4 3 2 1 1 5 4 4 4 2 1 4 4 0 9 9 8 7 6 5 5 4 3 2 2 1 0 9 8 7 6 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 | 94077 84074 75007 | - 00731 - 01822 - 02851 - 02757 - 04713 - 04313 - 04514 - 04686 - 04686 - 04687 - 03203 - 07278 - 07278 - 07370 - 07278 - 07370 - 07370 - 07370 - 07370 - 07370 - 07370 - 074286 - 04860 - | . 176 . 054 . 054 . 054 . 107 . 601 . 588 . 1291 . 1345 . 1345 | - 9495 5 - 84936 7 - 7496 3 - 7496 3 - 7496 9 - 7496 9 - 7496 9 - 7496 9 - 7496 9 - 7496 9 - 7486 9 - 748 | 00734 01823 02854 03714 04814 048814 04685 03624 03198 026803 02268 01305 01305 01305 01365 01 | -163 -C53 -C29 -O98 -153 -200 -511 -521 -521 -521 -521 -521 -521 -392 -349 -775 -451 -115 -699 -883 -877 -743 -567 -547 -547 -547 -547 -547 -547 -547 -54 | .94946 .84958 .75062 .64957 .54967 .14976 .14976 .14976 .10039 .06556 .00193 .00193 .00193 .00193 .00193 .00193 .00193 .01265 .020192 .020192 .020193 .020193 .03630 .0363 | 00735 01821 2850 03715 04376 04376 04376 04376 03627 03520 02813 02266 01313 00266 01313 00266 01313 00361 02583 02583 02583 03621 03635 03636 | . 155 . 247 . 027 . 037 . 198 . 198 . 459 . 503 . 564 . 552 . 459 . 718 . 426 . 014 . 362 . 727 . 941 . 362 . 727 . 941 . 362 . 498 . 498 . 563 . 498 . 563 . 690 . 513 . 564 . 690 . 727 . 941 . 102 . 103 . 103 | | | |

TABLE B1-19

TEST 2302

MO = .8803 ALPHA = 2.05 REC = 11.78*10**6

| | SECTION | 1 | | SECTION | 2 | | SECTION | 3 | | 2 E C 1 I O A | 4 | |
|----|---------|---------|-------|----------|--------|------|---------|---------|-------|---------------|---------|-------|
| NP | X/L | 1/1 | CP | X/L | 1/1 | CP | ×/L | 2/1 | CP | X/L | 2/1 | CP |
| 12 | .95030 | 00726 | . 100 | .94957 | 00735 | .149 | .94999 | 30 737 | .171 | .94937 | 30751 | .178 |
| 11 | . 81597 | 02193 | 111 | .81705 | 02182 | 047 | . 81986 | 02152 | 012 | . 82223 | 02125 | .006 |
| 10 | .64593 | 73587 | 242 | . 66693 | 03579 | 204 | .67008 | 03553 | 168 | .67216 | 03537 | 121 |
| 9 | . 56598 | 04301 | 330 | .56705 | 04294 | 322 | .57033 | 04272 | 305 | .57250 | 04261 | 174 |
| 9 | . 46522 | 04773 | 353 | . 46706 | 04769 | 405 | . 47037 | 04760 | 448 | .47220 | 04755 | 528 |
| 7 | . 36580 | 74889 | 267 | . 36705 | 04889 | 323 | . 37009 | 04890 | 588 | . 37235 | 04891 | 431 |
| 6 | . 26579 | 04762 | 211 | . 26705 | 04706 | 250 | .27010 | 04716 | 287 | .27253 | 04725 | 529 |
| 5 | . 16594 | 04194 | 144 | .16699 | 04702 | 198 | .17010 | 04224 | 207 | .17242 | 04238 | 251 |
| 4 | .04973 | 02971 | 124 | .04909 | 02958 | 148 | .05016 | 32975 | 130 | .05017 | 02974 | 154 |
| 3 | .02002 | 02268 | 175 | .01922 | 02242 | 160 | .02010 | 02275 | 141 | .01999 | 02269 | 153 |
| 2 | .00503 | 01333 | .480 | .00520 | 01261 | .490 | .00591 | 01326 | .500 | .00611 | 01355 | . 485 |
| 1 | .00034 | .00292 | .840 | .00031 | .00277 | .828 | .00042 | .00317 | .810 | .00000 | .00000 | . 306 |
| 34 | .00216 | . 00802 | .557 | .00103 | .00553 | .515 | .00222 | .00835 | .465 | .00210 | .00737 | . 448 |
| 33 | .00866 | .01592 | 001 | .00789 | .01531 | 072 | .00914 | .01640 | 133 | .00893 | .01619 | 127 |
| 32 | .02037 | .72785 | 523 | .01905 | .02232 | 647 | . 02036 | .02273 | 694 | .02012 | .02276 | 757 |
| 31 | .03525 | .02701 | 863 | .03402 | .02674 | 915 | .03508 | .02678 | 958 | .03530 | .02701 | 931 |
| 30 | .06036 | .03130 | 369 | . 05 911 | .03113 | 858 | . 06322 | .03123 | 961 | .06011 | .03127 | 910 |
| 50 | .09959 | .03617 | 558 | .09913 | .03613 | 366 | .10029 | .03626 | 789 | .10019 | . 03623 | 813 |
| 29 | .15037 | .04020 | 349 | .14927 | .04071 | 418 | . 15032 | .04678 | 430 | . 15024 | .04078 | 741 |
| 27 | . 20044 | .04413 | 366 | .19909 | .04405 | 456 | . 20029 | .04411 | 496 | .20016 | .04410 | 494 |
| 26 | . 25039 | .04647 | 379 | . 25080 | .04649 | 475 | . 25024 | .04647 | 529 | .25021 | .04647 | 551 |
| 25 | .30050 | .04300 | 386 | . 29925 | .04798 | 478 | . 30008 | .04805 | 562 | . 30021 | . 94799 | 595 |
| 24 | .35050 | .04879 | 411 | .34927 | .04878 | 498 | . 35024 | . 34879 | 584 | . 35015 | .04879 | 640 |
| 23 | .40047 | .04886 | 430 | . 39931 | .04886 | 536 | .40037 | .04885 | 618 | . 39977 | .04885 | 659 |
| 22 | .45030 | .04212 | 477 | .44897 | .04815 | 565 | . 45010 | .04813 | 656 | .45039 | .04813 | 706 |
| 21 | .50039 | .04648 | 502 | .49927 | .04652 | 527 | .50024 | .04649 | 706 | .50020 | . 34648 | 762 |
| 50 | . 55025 | .04394 | 536 | .54927 | .04398 | 655 | .55042 | .04 392 | 727 | .55055 | .04575 | 495 |
| 19 | .60029 | .04075 | 593 | .59931 | .04083 | 668 | .60071 | .04073 | 736 | .60018 | .04078 | 184 |
| 13 | .65032 | .03711 | 618 | .64917 | .03719 | 661 | . 65026 | .03711 | 222 | .65015 | . 03711 | 080 |
| 17 | .71026 | .03219 | 560 | .73897 | .03229 | 180 | .71034 | .03218 | 381 | .70977 | .03222 | 019 |
| 16 | .78026 | .02561 | 174 | .77912 | .02572 | 056 | .780C8 | .02563 | .004 | .78012 | .02562 | .027 |
| 15 | . 85021 | .01814 | 059 | .84903 | .01826 | .034 | . 85001 | .01815 | .075 | .85010 | .01815 | . 380 |
| 14 | .92027 | .01021 | .062 | .91929 | .01032 | .126 | .92012 | .01023 | . 151 | .92005 | .01023 | .155 |
| 13 | . 99519 | .00265 | .178 | .98387 | .00283 | .213 | .98611 | . 20251 | . 240 | .98498 | .00267 | . 237 |

| | SECTION 5 | | | SECTION | 6 | SECTION 7 | | | | |
|----|-----------|----------|-------|----------|---------|-----------|----------|----------|--------|--|
| NP | Y/L | 7/1. | CP | X/L | 1/1 | CP | X/L | 1/1 | CP | |
| 15 | . 94977 | 20731 | . 170 | .94953 | 00734 | .151 | .94946 | 03735 | .106 | |
| 14 | . 84954 | 01922 | .045 | . 84934 | 01823 | -041 | . 94 958 | 61821 | . 024 | |
| 15 | . 75003 | 22251 | 050 | .74955 | 02854 | 040 | .75002 | 02850 | 346 | |
| 12 | . 64999 | 01713 | 122 | .64980 | 03714 | 110 | . 64957 | 03715 | 008 | |
| 11 | .54735 | 06507 | 518 | .56755 | 04796 | 167 | .54767 | 34398 | 152 | |
| 10 | .44220 | 04014 | 527 | .44772 | 04814 | 197 | .4497C | 04816 | 20 3 | |
| 9 | - 35016 | 04880 | 519 | . 34 993 | 04880 | 490 | . 54973 | 34879 | 581 | |
| 8 | .25012 | 04646 | 410 | . 24997 | 04645 | 479 | . 24976 | 04645 | 456 | |
| 7 | . 15054 | 04021 | 272 | . 15015 | 04078 | 435 | . 14996 | 34076 | 459 | |
| 6 | .10029 | 03625 | 216 | .10017 | 03624 | 332 | .10039 | 03627 | 507 | |
| 5 | .06550 | 03203 | 221 | .06521 | 03198 | 262 | . 06536 | 33200 | 466 | |
| 4 | .04030 | 02788 | 221 | .05999 | 02803 | 270 | .04025 | 02813 | 454 | |
| 3 | .02010 | 02282 | 195 | .01935 | 89220 | 237 | .01985 | 32266 | 372 | |
| 2 | .00597 | 91314 | .472 | .00567 | 21305 | .422 | .00578 | 01313 | . 248 | |
| 1 | -00357 | .00370 | . 785 | . 00053 | -00449 | .755 | .00056 | .00361 | .696 | |
| 45 | .00124 | .00727 | .011 | .00173 | .00749 | . 381 | .00193 | .00757 | . 359 | |
| 44 | .00526 | .01361 | .011 | .00623 | .01365 | .030 | .03630 | .01368 | 068 | |
| 43 | .01229 | .01973 | 374 | .01239 | . 21851 | 375 | .01265 | . 31889 | 451 | |
| 42 | .02226 | .07777 | 765 | .01985 | . 32268 | 775 | .02012 | 17550. | 306 | |
| 41 | . 02098 | .02581 | 057 | 16620. | .02584 | 974 | .02999 | .02583 | -1.324 | |
| 40 | .04755 | .72966 | 955 | .04972 | .02967 | 936 | .04995 | .02970 | -1.061 | |
| 30 | .07649 | .03322 | 987 | .07488 | .03329 | 941 | . 07482 | .03327 | -1.051 | |
| 38 | .09994 | .03621 | 840 | . 09991 | .03620 | 894 | .09990 | .03621 | -1.006 | |
| 37 | .13986 | .03995 | 794 | .13983 | .03994 | 895 | .13976 | .03905 | 826 | |
| 36 | .17777 | .34226 | 769 | .17777 | .04272 | 912 | . 17991 | .04 288 | 729 | |
| 35 | .22001 | . 04515 | 560 | 01055. | .04514 | 864 | . 21990 | .04514 | 674 | |
| 54 | .25954 | .04481 | 590 | .25996 | .04681 | 518 | . 25976 | .04632 | 478 | |
| 35 | . 20009 | .04800 | 661 | . 29994 | .04799 | 491 | . 29786 | .04800 | 394 | |
| 35 | . 33705 | . 76 840 | 725 | . 34 008 | .04867 | 512 | . 33979 | . 34 868 | 344 | |
| 31 | . 17986 | .04397 | 768 | . 37994 | .04891 | 452 | . 37976 | .04892 | 320 | |
| 30 | .41959 | .04867 | 675 | .41983 | .34867 | 294 | . 41 988 | . 34869 | 250 | |
| 23 | .45975 | .04789 | 535 | .45975 | .04790 | 215 | .45970 | .04737 | 211 | |
| 23 | . 49760 | .04650 | 199 | . 49794 | .04649 | 177 | . 49987 | .04647 | 185 | |
| 27 | .53959 | .04457 | 134 | .53988 | .04450 | 153 | .53975 | .04452 | 152 | |
| 24 | .57961 | .04714 | 102 | .57791 | .04210 | 114 | . 57985 | .04214 | 125 | |
| 25 | . 61797 | .03938 | C81 | .61970 | .03939 | 091 | . 61976 | .03940 | 106 | |
| 24 | . 45742 | .03637 | 060 | .65979 | .03635 | [74 | . 65966 | . 33635 | 393 | |
| 23 | . 69770 | .03308 | 042 | .69975 | .03308 | 043 | . 69979 | .03308 | 079 | |
| 55 | .7 7740 | .02949 | 020 | .73970 | .02946 | 026 | .73980 | . 22946 | 070 | |
| 21 | . 77940 | .02567 | .011 | .77957 | .02567 | .002 | .77942 | .02570 | 060 | |
| 53 | .81757 | .02157 | .050 | .81965 | .02154 | .040 | . 81 985 | .02150 | 051 | |
| 19 | . 85755 | .01700 | .086 | .85993 | .01707 | .073 | . 85743 | .01712 | 346 | |
| 13 | . 89740 | .01246 | .127 | .89977 | .01241 | .109 | . 39761 | .01243 | 045 | |
| 17 | . 74727 | .00755 | .182 | .94851 | .00742 | .160 | . 94959 | .00733 | 061 | |
| 16 | . 29504 | .00264 | .756 | . 98467 | .00272 | .211 | . 98455 | .00274 | 042 | |

TEST 2304

MO = .8809 ALPHA = 3.06 REC = 11.77*10**6

| | SECTION 1 | | SECTION 2 | | | SECTION 3 | | | | SECTION | 4 | |
|-----|-----------|--------|-----------|-----------|---------|-----------|----------|----------|--------|---------|---------|--------|
| NP | X/L | 111 | CP | X/L | 2/1 | CP | ×/L | 2/1 | CP | X/L | 2/1 | CP |
| 12 | .95030 | 00726 | .094 | .94937 | 00735 | .146 | . 94 999 | 00737 | .166 | .94987 | 00731 | .174 |
| 11 | . 81597 | 02193 | 104 | .81705 | 02182 | 045 | .81980 | 02152 | 016 | . 82225 | 02125 | .001 |
| 10 | .66593 | 03587 | 212 | .66698 | 03579 | 190 | . 67008 | 03553 | 170 | .67216 | 03537 | 134 |
| 9 | .56588 | 04301 | 279 | . 56705 | 04294 | 285 | .57033 | 04272 | 289 | .57230 | 04261 | 213 |
| 8 | .46599 | C4773 | 297 | .46706 | 04769 | 334 | .47037 | 04760 | 373 | .47223 | 04755 | 464 |
| 7 | . 56590 | 04889 | 220 | . 36 70 5 | 04889 | 265 | . 37009 | 04890 | 327 | . 37235 | 04891 | 569 |
| 6 | .26579 | 04707 | 159 | .26705 | 04706 | 192 | . 27010 | 04716 | 224 | .27230 | 04723 | 270 |
| 5 | .16594 | 04194 | 083 | .16697 | 04202 | 133 | .17010 | 04224 | 139 | .17242 | C4238 | 165 |
| 4 | .04993 | 02971 | 036 | .04907 | 02958 | 348 | .05016 | 02975 | 326 | .05017 | 02974 | 051 |
| 3 | .05005 | 02268 | 041 | .01922 | 02242 | 020 | .02010 | 02275 | 304 | .01999 | 80550 | 011 |
| 5 | .00593 | 01333 | .558 | .00520 | 01261 | .562 | .00591 | 01326 | .578 | .00611 | 01355 | . 561 |
| 1 | .00034 | .00292 | .827 | .00031 | .00277 | .811 | .00042 | .00317 | .785 | .00000 | .00000 | .784 |
| 34 | .00216 | .00802 | . 502 | .00109 | .00553 | -450 | .00222 | .00806 | . 396 | .00210 | .00787 | . 379 |
| 33 | .00356 | .01592 | 080 | .00789 | .01531 | 157 | .00914 | .01640 | 217 | .00893 | .01619 | 209 |
| 32 | .02037 | .02295 | 598 | .01905 | .02232 | 715 | .02036 | .02273 | 778 | .02012 | . 32276 | 830 |
| 31 | .03535 | .02701 | 948 | .03402 | .02674 | 991 | . 03508 | .02698 | -1.031 | .03550 | .02701 | -1.051 |
| 30 | .06756 | .03130 | ~.828 | .05911 | .03113 | 963 | . 06022 | .03128 | 996 | .06011 | .03127 | -1.010 |
| 5.0 | .09959 | .03617 | 436 | . 09913 | . 03613 | 835 | .10029 | .03626 | 90 6 | .10019 | .03623 | 922 |
| 58 | .15037 | .04080 | 384 | .14927 | .04071 | 425 | . 15032 | .04078 | 843 | .15024 | .04078 | 378 |
| 27 | .20044 | .04413 | 425 | .19909 | .04405 | 490 | . 20029 | .34411 | 768 | .20016 | .04410 | 855 |
| 26 | . 25039 | .04647 | 442 | . 25 08 0 | .04649 | 521 | . 25024 | .04647 | 523 | . 25021 | .04647 | 845 |
| 25 | . 30050 | .04800 | 428 | . 29925 | .04798 | 522 | . 30008 | .04800 | 579 | .30021 | .04799 | 711 |
| 24 | . 35350 | .04879 | 456 | . 34927 | .04878 | 540 | . 35024 | .04879 | 626 | . 35015 | .04379 | 625 |
| 23 | .40047 | .04886 | 470 | . 39931 | .04886 | 582 | .40037 | .04886 | 646 | . 59977 | .04885 | 675 |
| 5.5 | .450 17 | .04812 | 504 | .44897 | .04815 | 598 | .45010 | .04813 | 694 | .45039 | . 04813 | 751 |
| 21 | .50039 | .04648 | 523 | .49727 | .04652 | 655 | .50024 | .04649 | 749 | .50020 | .04643 | 777 |
| 5.0 | .55025 | .04394 | 555 | .54927 | .04398 | 483 | .55042 | . 04 392 | 761 | .55053 | . 04595 | 452 |
| 19 | .60729 | .04075 | 615 | .59931 | .04083 | 699 | - 60071 | .04073 | 781 | .60018 | .04074 | 198 |
| 18 | -65732 | .93711 | 660 | .64917 | .03719 | 718 | . 65026 | .63711 | 259 | .65015 | . 03711 | 094 |
| 17 | .71726 | .03219 | 449 | .70397 | .03229 | 555 | .71034 | .03218 | 103 | .73977 | .05222 | 016 |
| 16 | .79026 | .02561 | ~.180 | .77912 | .02572 | 060 | .78008 | .02563 | .006 | .78012 | . 02562 | .043 |
| 15 | .85021 | .01914 | 054 | . 84 90 5 | .01826 | .040 | . 85001 | .01815 | . 386 | .85013 | .01815 | .094 |
| 14 | .92727 | .01021 | .000 | . 91 92 9 | .01632 | .131 | .92012 | .01023 | . 160 | .92035 | .01023 | . 162 |
| 1.5 | .98519 | .00265 | .173 | .98387 | .00283 | .218 | .98511 | .00251 | .240 | .98498 | .00267 | .255 |

| | SECTION | 5 | | SECTION | 6 | | SECTION 7 | | | |
|-----|---------|--------|--------|----------|---------|--------|-------------|----------|--------|--|
| NP | */1 | 1/1 | cr | X/L | 111 | CP | X/L | 2/1 | Co | |
| 15 | .94977 | 00731 | .167 | - 24253 | 00734 | .143 | .94946 | 00735 | .083 | |
| 14 | . 94754 | 01822 | .041 | .84934 | 01823 | .034 | . 34 958 | 01821 | .002 | |
| 13 | . 75003 | 02851 | 053 | .74965 | 02854 | 046 | . 75002 | 02850 | 362 | |
| 12 | .64993 | 03713 | 127 | .64940 | 03714 | 113 | . 54957 | 03715 | 110 | |
| 11 | .54993 | 04397 | 480 | .54955 | 04396 | 170 | . 54967 | 34398 | 160 | |
| 10 | .44990 | 04914 | 482 | .44998 | 34814 | 229 | . 44970 | 04316 | 221 | |
| 9 | . 55015 | 04980 | 443 | .34970 | 04880 | 450 | . 34973 | 34879 | 455 | |
| | . 25012 | 04646 | 348 | . 24997 | 04645 | 424 | . 24976 | 04645 | 418 | |
| 7 | .15054 | 04021 | 203 | .15016 | 04078 | 366 | .14796 | 04075 | 407 | |
| 6 | .10029 | 03625 | 139 | .10019 | 03624 | 258 | . 10039 | 03627 | 441 | |
| . 5 | .06550 | 03203 | 105 | .06521 | 03198 | 130 | .06536 | 03200 | 384 | |
| 4 | -04030 | 02788 | 105 | .03999 | 02803 | 176 | . 04025 | 02813 | 355 | |
| 3 | .02030 | 02282 | 058 | .01985 | 89220 | 105 | .01985 | 02266 | 246 | |
| 2 | -00597 | 01314 | .545 | .00557 | 01305 | .495 | .00578 | 01313 | . 365 | |
| 1 | .00057 | .00370 | .759 | .00065 | .00449 | .725 | .00050 | .00361 | . 673 | |
| 45 | .00184 | .00727 | 073 | .00190 | .00749 | .310 | -00193 | .00757 | .290 | |
| 44 | .00625 | .01361 | 072 | .03623 | .01365 | 047 | .00630 | . 21368 | 145 | |
| 45 | -01228 | .01873 | 450 | .01209 | .01851 | 462 | .01265 | .01889 | 522 | |
| 42 | .02005 | .02272 | 838 | .01985 | .02268 | 858 | 51050. | .32277 | 870 | |
| 41 | .02999 | .02581 | -1.031 | .02991 | .02584 | -1.042 | .02999 | .02583 | -1.088 | |
| 40 | .04966 | .02266 | -1.039 | .04977 | .02967 | -1.070 | .04995 | .02970 | -1.136 | |
| 59 | -07449 | .03322 | 221 | .07488 | .03329 | -1.029 | .07482 | .03327 | -1.131 | |
| 59 | .00004 | .03421 | 950 | . 09791 | .03620 | 988 | .09990 | .03621 | -1.085 | |
| 37 | .13936 | -03995 | 917 | . 13783 | -03994 | 992 | .13976 | .03995 | 898 | |
| 36 | .17777 | .04286 | 889 | .17999 | .04272 | -1.014 | . 17991 | .04 288 | 807 | |
| 35 | 17055 | .04515 | 994 | .22010 | .04514 | 992 | .21990 | .04514 | 772 | |
| 34 | . 25944 | -04481 | 990 | . 25794 | .04681 | 839 | . 25976 | . 04 682 | 756 | |
| 33 | .29988 | .04300 | 906 | . 29796 | .04799 | 776 | . 29986 | .04800 | 725 | |
| 32 | . 55295 | .04969 | 933 | . 34008 | .04869 | 769 | . 33979 | .04868 | 714 | |
| 31 | . 37986 | .04892 | 944 | . 37 994 | .04891 | 632 | . 37976 | .04 392 | 402 | |
| 30 | .41959 | .04867 | 619 | .41988 | .04867 | 259 | .41988 | .04868 | 278 | |
| 22 | .45075 | .04789 | 350 | . 45775 | .04790 | 169 | .45970 | . 24 789 | 183 | |
| 78 | . 49960 | .04650 | 224 | 49994 | .04649 | 122 | .49987 | .04649 | 155 | |
| 27 | .55050 | .04452 | 133 | .5398R | .04450 | 103 | . 53975 | .04452 | 156 | |
| 26 | .57761 | .04214 | 075 | .57991 | .04210 | 079 | .57985 | -04214 | 159 | |
| 25 | .61997 | .03938 | 048 | .61970 | .03939 | 266 | .61976 | .05940 | 169 | |
| 24 | . 55958 | .03637 | 030 | -65979 | .03635 | 056 | . 65966 | .03636 | -, 186 | |
| 23 | .69970 | .03308 | 016 | .69975 | .03368 | 032 | 69979 | .03308 | 200 | |
| 22 | .73240 | .02949 | 001 | .73970 | .02946 | 024 | .73980 | .02946 | 215 | |
| 21 | .77950 | .02567 | .024 | .77962 | .02567 | .000 | .77942 | .02570 | 229 | |
| 20 | .81237 | .02157 | .058 | .81965 | .02154 | .032 | .81985 | .02150 | 244 | |
| 19 | . 85955 | .01709 | .090 | .85980 | .01707 | .059 | . 85943 | .01712 | 246 | |
| 13 | 89940 | -01246 | .127 | .89977 | .01241 | .086 | 39961 | -01243 | 249 | |
| 17 | .94727 | .00755 | .179 | .94861 | .00742 | .135 | . 94959 | .00733 | 255 | |
| 16 | .93506 | .00266 | .233 | .98462 | \$1500. | .188 | . 98455 | .30274 | -, 182 | |
| 10 | . 44500 | | | . 77402 | . 00272 | | . , 5 4 3 3 | | 102 | |

TABLE B1- 21

and the best of the second of

TEST 2591

MO = .8831 ALPHA = 4.07 REC = 11.78*10**6

| | SECTION | | | SECTION | | | SECTION | | | SECTION | | |
|---|--|---|--|--|--|--|--|--|---|---|--|---|
| NP 12 110 9 8 7 6 5 4 5 2 2 1 1 3 4 5 5 2 7 2 6 5 2 2 4 2 3 2 2 2 1 1 9 1 1 7 6 1 1 5 1 4 1 1 5 1 1 4 1 1 5 | 8/L .90 10 .41597 .65593 .56593 .45599 .36589 .26579 .16592 .00034 .00034 .00034 .00216 .02047 .03525 .00044 .25039 .30050 .4004 .55039 .50050 .4004 .55039 .50 | 7/L - 00726 - 02193 - 03587 - 04301 - 04773 - 04875 - 04194 - 02277 - 02268 - 00392 - 0285 - 0292 - 044194 - 0480 - 0480 - 0486 - 04812 - 04649 - 04675 - 04675 - 07111 - 02561 | CP .087100189239252179114034071019807438157660 -1.011971464555580452426475491546564564564564564563185185185 | x/L 94937 817C5 66698 56705 46706 35706 26705 104907 01922 00031 00133 007739 01906 03402 05911 09915 14927 19909 25082 29925 59931 64917 70397 77917 70397 77917 84903 91029 98387 | 2/L007350218203579042940479904889047060420202258022420126100553012610055301563026740405044050 | CP -133 -045 -174 -280 -215 -139 -075 -041 -102 -634 -789 -1039 -1037 -785 -1039 -057 -785 -1039 -074 -074 -074 -074 -074 -074 -074 -074 | x/L -94999 -81986 -67008 -67008 -67008 -67033 -47037 -67009 -27010 -17010 -05516 -05591 -00042 -00022 -00914 -02036 -05508 -06022 -10029 -25024 -30008 -35008 -35008 -35004 -3008 -35004 -3008 -35004 -3008 -35004 -3008 -35004 -3008 -35004 -35 | 7/L -00737 -02152 -03527 -04272 -04760 -04890 -04714 -04224 -02275 -01326 -00317 -02275 -01326 -00417 -04800 -02473 -02698 -03128 -03626 -04075 -04800 | 151 -027 -170 -258 -317 -266 -076 -076 -076 -076 -076 -076 -076 -0 | 94947 84223 67216 67216 57235 47229 57235 17242 100000 00000 000210 000210 000210 000210 000210 000210 100199 15024 20016 25621 3002 | 7/L00751021250353704261047530487504875048750475500000078701619027010312703623044100 | . CP . 141 150 248 399 312 211 102 211 104 116 636 758 758 116 107 108 |
| | SECTION | 5 | | SECTION | 6 | | SECTION | 7 | | | | |
| NP | X/L | 1/1 | CP | X/L | 1/1 | CP | x/L | Z/L | CP | | | |
| 15 | .94977 | 00731 | .002 | .94953 | 00734 | 007 | . 84 958 | 00735 | 038 | | | |
| 13 | .75003 | 02951 | 074 | .74963 .64980 | 02854 | 074 | .75002 | 02850 | 098 | | | |
| 11 | .54993 | 04597 | 438 439 | .54955 | 04396 | 194 | .54967 | 04 398 | 183 | | | |
| 9 | . 35016 | 04886 | 378 | . 34993 | 04880 | 417 | . 34973 | 34879 | 439 | | | |
| 8 | .25012 | 04646 | 292 | .15015 | 04645 | 374 | . 14996 | 04645 | 387 | | | |
| 6 | .10029 | 03625 | 069 | .10017 | 03624 | 190 | .06536 | 03627 | 380 | | | |
| 4 | .04030 | 02788 | 015 | .03999 | 02803 | 091 | . 44025 | 02813 | 257 | | | |
| 3 | .02030 | 02287 | .066 | .01985 | 02268 | .525 | .01985 | 02266 | 132 | | | |
| . 1 | -00057 | .00379 | .731 | .00068 | .00449 | .695 | .00056 | .00301 | .646 | | | |
| 45 | .00194 | .01361 | 144 | .00173 | .00749 | 134 | .00193 | .00757 | 203 | | | |
| 43 | .01223 | .01873 | 509 | .01209 | .01851 | 526 | .01265 | .01889 | 583 930 | | | |
| 41 | .02999 | .02581 | -1.084 | .02991 | .02584 | -1.092 | .02999 | .02583 | -1.138 | | | |
| 40 | .04955 | .07966 | -1.105 | .04972 | .02967 | -1.131 | .04995 | .02970 | -1.191 -1.186 | | | |
| 38 | .09994 | .03621 | -1.021 | .09991 | .03620 | -1.055 | .09996 | .03621 | -1.140 | | | |
| 56 | -17979 | .04796 | 972 | .17999 | .04272 | -1.060 | .13976 | .03995 | 946 | | | |
| 55 | .22001 | .04515 | 971 | .22010 | .04514 | -1.060 | .21990 | .04514 | 827 | | | |
| 33 | .29988 | .04800 | 955 | . 29994 | .04799 | 580 | . 29986 | .04800 | 727 | | | |
| 52 | . 13945 | .04849 | 601 | . 34008 | .04869 | 497 | . 33979 | .04868 | 585 | | | |
| 30 | .41959 | .04867 | 459 | .41988 | .34867 | 423 | .41988 | . 34868 | 330 | | | |
| 28 | .45975 | .04789 | 430 | .45975 | .04649 | 379 | .45976 | .04789 | 260 | | | |
| 27 | .53959 | .04452 | 369 | .53988 | .04450 | 267 | .53975 | .04452 | 207 | | | |
| 25 | .61987 | .01918 | 255 | .61970 | . 03939 | 155 | . 61976 | .03940 | 201 | | | |
| 24 | .65969 | .03502 | 144 | .65979 | .03635 | 122 | . 65966 | .03368 | 237 | | | |
| 22 | . 73940 | *USA#0 | 084 | . 73 773 | .02946 | 055 | . 73986 | .02946 | 512 | | | |
| 21 | .779A0 .81937 | .02567 | 030 | . 81765 | . 32567 | 018 | . 81985 | .02570 | 343 | | | |
| 19 | . 35055 | -01/09 | .055 | . 85993 | .01707 | .036 | . 85943 | .01712 | 365 | | | |
| 17 | .94727 | 01246 | .108 | .89977 | .01241 | .054 | . 94 95 9 | .00733 | 35 5 | | | |
| 16 | . 98505 | ,00288 | .143 | .98467 | .00272 | .131 | .98455 | .00274 | 189 | | | |

TEST 2592

MO = .8808 ALPHA = 5.07 REC = 11.78*10**6

| | SECTION 1 SECTION 2 P X/L 2/L CP X/L 2/L | | SECTION | 3 | | SECTION | | | | | | |
|---|--|--|---|---|--|--|---|---|---|--|---|--|
| NP | | | CP | | | CP | X/L | 2/1 | CP | X/L | 2/1 | CP |
| 12 11 10 9 4 7 6 6 5 4 4 5 7 6 6 5 4 4 5 7 7 6 6 5 2 2 1 3 3 3 3 2 2 2 2 2 2 2 3 3 1 3 1 3 | .950 to | - 00726 - 02193 - 03587 - 04301 - 04775 - 04702 - 04702 - 02971 - 01335 00292 - 01592 - 0285 - 02701 - 03617 - 04413 - 04647 - 04812 - 0481 | .0880861531921991300640651866807767401.057740 -1.057592639598 | 94957 81705 66693 56705 46706 56705 26705 20705 200051 001102 000051 001705 001 | 00735 02182 03579 04294 04769 04769 04202 02958 02242 01261 00277 00553 02232 02674 03113 04671 04679 04878 04886 04886 04893 04683 046 | -129 -048 -159 -215 -230 -164 -089 -016 -124 -208 -690 -754 -320 -1107 -1106 -1029 -965 -939 -816 -664 -606 -607 -648 -701 -726 -739 -1150 -150 -204 | 94999 81986 87008 87038 47037 37009 277010 07010 07010 00591 00342 00222 00914 02336 06022 110029 15032 25024 350048 35024 45010 50324 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 55042 | 00757 02152 02553 04276 04276 04289 04276 02275 01326 00806 01640 02275 01326 00806 01640 02273 01806 01640 02273 01806 04647 04800 04647 0464 | .116048170250265212112114 .148 .235 .703 .718 .248359910 -1.161 -1.13498510610 | 94947 82223 67216 57250 47220 37235 27230 17242 05017 00011 000843 02012 03550 66011 10019 15024 20016 25021 35015 35015 35015 35015 35015 70977 78412 85010 98498 | 02751 02125 03537 04253 04753 04753 04753 04753 04753 04753 04753 04753 04753 04754 04764 04799 04875 04815 | .012 -071 -172 -250 -326 -253 -153 -038 -1152 -248 -399 -963 -1171 -1.050 -1.05 |
| N.P. | SECTION | 5 | CP | SECTION | 6 | (p | SECTION | 7 | CP | | | |
| 15 14 13 11 10 10 10 10 10 10 10 10 10 10 10 10 | 94977 84954 -55001 -55001 -55014 -55014 -55014 -55014 -55014 -55014 -65010 -650 | 00731 01822 02851 02851 04814 04886 04625 037625 037625 03762 0 | .000 055 114 169 318 277 080 083 083 083 083 784 334 334 334 334 334 334 334 315 315 316 - | . 94 95 5 . 84 93 6 . 74 96 8 . 74 96 8 . 74 97 9 . 74 97 9 . 74 97 9 . 94 97 9 . 94 97 9 . 95 97 9 . 95 97 9 . 97 96 9 . 98 96 96 96 96 96 96 96 96 96 96 96 96 96 | - 00734 - 01823 - 02854 - 0371: - 04874 - 04880 - 04645 - 03624 - 03198 - 02268 - 01305 - 01365 - 01365 - 02584 - 02586 - 02586 - 02586 - 02586 - 02686 - 0 | .013055113165207369369351255032224608950 -1.1561.200 -1.170 -1.1571536889501.37159458551 - | 94746 -44758 -75002 -64957 -54767 -34976 -14996 -10039 -06536 -01985 -00578 -00193 -00456 -0193 | - 00735 - 01821 - 02850 - 03715 - 04876 - 04876 - 04876 - 04876 - 04876 - 03507 - 0350 | - 015 - 078 - 188 - 188 - 182 - 205 - 413 - 554 - 312 - 505 - 241 - 777 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 606 - 1077 - 607 - 1077 - 607 - 1077 - 607 - 1077 - 607 - 1077 - 607 - 1077 - 607 - 1077 - 607 - 1077 - 607 | | | |

TABLE B1-23

MO = .8868 ALPHA = 6.07 REC = 11.83*10**6

| | SECTION 1 | | | SECTION 2 | | | SECTION | 3 | | SECTION | |
|---|---|---|--|--|---|--|---|--|--|---|--|
| NP | x/L | 1/1 | CP | x/L | 1/1 | CP | x/L | 2/1 | CP | X/L | 1/1 |
| 12 11 10 9 8 7 6 5 4 3 2 1 3 4 3 5 2 2 2 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 | .95050 .81597 .66593 .56589 .36589 .36589 .36589 .02012 .05579 .00346 .00216 .00346 .00316 .0 | - 00726 - 02193 - 03587 - 04301 - 04773 - 04889 - 042921 - 02288 - 01353 - 00292 - 01592 - 01592 - 01592 - 02710 - 03130 - 034080 - 04447 - 04802 - 04812 - 04879 - 04 | .078 -078 -129 -155 -084 -015 -077 -210 -300 -746 -753 -315 -394 -302 -1114 -1.964 -613 -771 -744 -553 -599 -616 -589 -642 -683 -190 -647 -633 -190 -647 -647 -659 | 94957 81705 66698 56705 46706 36705 26705 16599 01922 00522 00522 00523 00168 00789 01906 03402 05911 14927 19909 28925 34927 34927 54927 77912 84905 91929 98387 | 00735 02182 03579 04294 04769 04789 04706 04202 02242 01261 00277 00553 01531 02232 02614 03613 04649 04649 04683 046 | .111 -056 -141 -184 -183 -116 -033 -042 -204 -512 -724 -251 -375 -1141 -1.140 -1.024 -975 -934 -775 -775 -756 -499 -105 -030 -105 -181 | 94999 31986 67708 577033 57037 57009 17010 10010 1005516 100591 100591 100522 10022 10022 10023 10029 15032 | - 00737 - 02132 - 03553 - 04272 - 04722 - 04716 - 04224 - 02275 - 02275 - 01326 - 01526 - 01526 - 01526 - 02275 - 01526 - 02275 - 01526 - 04572 - 04672 - 04672 - 04872 - 0 | - 010 - 082 - 177 - 211 - 225 - 166 - 066 - 044 - 224 - 352 - 753 - 685 - 485 - 119 - 1 175 - 1 177 - 1 040 - 1 035 - 1 039 - 1 035 - 510 - 510 - 603 - 60 | 94947 82223 67216 57230 47220 37255 17242 05617 00100 00213 | 00731 02125 03537 04261 04753 04891 04723 04238 02208 01355 06000 06787 01619 02276 02276 02276 02401 03127 04687 04885 04078 04885 04078 04885 04078 04879 0485 04078 04879 0485 04078 05711 05722 05685 05711 05722 05685 05711 05722 05686 05711 05722 05686 05711 05722 05768 05768 05768 05771 05768 05771 05768 05771 05 |
| | SECTION | | | SECTION | | | SECTION | , | | | |
| NP | X/L | 2/L | CP | ×/L | 1/1 | CP | x/L | 1/1 | CP | | |
| 15 14 13 12 11 10 9 8 7 6 6 5 6 6 7 6 6 6 7 6 6 7 6 6 7 7 8 7 8 7 8 7 | 94977 84954 75903 64948 54981 54981 64990 64590 | - 06751 - 01922 - 02851 - 03713 - 04814 - 04880 - 14646 - 04681 - 04780 - 04681 - 03625 - 03282 - 03114 - 01779 - 01514 - 01873 - 02787 - 01514 - 01873 - 02787 - 03523 - 04787 - 04810 - 0480 - 04802 | 09211015619436036102100216716830430430430430430430430430430430430430818861.887387 | .94953 .84936 .74963 .74963 .54995 .44998 .74997 .10019 .00567 .00198 .00190 .00567 .00190 .00623 .01209 .0 | - 00734 - 01823 - 02854 - 03714 - 04896 - 04816 - 04645 - 03624 - 03598 - 02588 - 0258 | -077 -105 -1151 -188 -225 -385 -385 -390 -174 -060 -037 -084 -218 -632 -132 -286 -1234 -1237 -1238 -1237 -1246 -1257 -1246 -1217 -175 -177 | .94946 .44958 .75002 .64957 .54967 .44970 .24976 .10039 .06556 .04025 .01085 .00198 .00650 .00198 .00650 .02999 .04998 .07482 .07998 .33979 .41988 | - 00735 - 01821 - 02850 - 03715 - 04816 - 04879 - 04645 - 04676 - 03627 - 03527 - 03527 - 03527 - 03527 - 03527 - 03527 - 04545 - 046452 - 046652 - | 09012610519922359951927524617009052470910371.2841.2721.194285519475515 | | |

TEST 2296

MO = .9207 ALPHA = .03 REC = 11.78*10**6

| | SECTION 1 | | SECTION | SECLION 5 | | SECTION 3 | | | SECTION | 4 | | |
|-----|-----------|----------|---------|-----------|---------|-----------|-----------|----------|---------|---------|---------|-------|
| NP | X/L | 1/1 | CP | x*/ L | 2/1 | CP | x/L | 2/1 | CP | x/L | 1/1 | CP |
| 12 | .95030 | 00726 | .105 | .94957 | 00735 | . 150 | .94999 | 00737 | .168 | .94937 | 00731 | .177 |
| 11 | .81597 | 02193 | 194 | .81705 | 02182 | 067 | . 81986 | 02152 | 639 | .82223 | 02125 | 015 |
| 10 | . 56593 | 03587 | 511 | .65698 | 03579 | 554 | . 67008 | 33553 | 521 | .67216 | 03537 | 392 |
| 9 | .56588 | 04301 | 439 | . 56705 | 04294 | 533 | .57333 | 04272 | 584 | .57250 | 04261 | 089 |
| 8 | .46597 | 04773 | 367 | .46736 | 34769 | 446 | . 47037 | 04760 | 515 | .47223 | 04753 | 583 |
| 7 | . 56580 | 94389 | 509 | . 36705 | 04889 | 371 | . 37009 | 04890 | 443 | . 37255 | 04891 | 483 |
| 6 | .26579 | 04702 | 270 | . 26705 | 04706 | 319 | . 27010 | 04716 | 363 | . 27250 | 04723 | 404 |
| 5 | .16594 | 04194 | 235 | .16699 | 04202 | 290 | .17010 | 04224 | 311 | .17242 | 04238 | 536 |
| 4 | .04993 | 02971 | 232 | .04907 | 02958 | 325 | .05316 | 32975 | 317 | .05017 | 02974 | 597 |
| 3 | .02002 | 02268 | 428 | .01922 | 32242 | 417 | .02010 | 02275 | 411 | .01999 | 02268 | 455 |
| 5 | .00503 | 01333 | .353 | .00520 | -,01261 | .356 | .00591 | 01326 | .355 | .00611 | 01355 | . 557 |
| 1 | .00034 | .00292 | .874 | .00031 | .00277 | .864 | .00042 | .00317 | . 852 | .00000 | .00000 | . 342 |
| 34 | .00216 | .00802 | .693 | .00108 | .00553 | .667 | .03222 | .00806 | . 627 | .00213 | .00787 | . 610 |
| 33 | .00966 | .01592 | . 221 | .00789 | .01531 | .161 | .00714 | .01640 | .108 | .00893 | .01619 | .110 |
| 3.2 | .07037 | .02285 | 286 | .01905 | .02232 | 368 | . 02036 | .02273 | 411 | .02012 | .02276 | 476 |
| 31 | .03525 | .02761 | 372 | .03402 | .02674 | 465 | .03508 | .02698 | 625 | .03550 | .02701 | 658 |
| 30 | .06036 | .03130 | 206 | .05911 | .03113 | 258 | .06022 | .03128 | 278 | .06011 | .03127 | 263 |
| 29 | .09959 | .03617 | 188 | . 09913 | .03613 | -, 251 | . 13029 | . 33626 | 314 | .10019 | .03623 | 528 |
| 28 | .15037 | .04080 | 194 | .14927 | .04071 | 256 | . 15032 | .04678 | 312 | . 15024 | .04078 | 547 |
| 27 | .20044 | .04413 | 221 | .19907 | .04405 | 299 | . 23029 | .34411 | 343 | . 20016 | .04410 | 391 |
| 26 | . 25039 | .04647 | 250 | .25080 | .04649 | 324 | . 25024 | .04647 | 571 | . 25021 | . 64647 | 413 |
| 25 | . 50050 | .04800 | 260 | . 29925 | .34798 | 339 | . 30008 | .04800 | 399 | .30021 | .04799 | 439 |
| 24 | . 35050 | .04879 | 287 | .34727 | .04878 | 364 | . 35024 | .04879 | 441 | . 35015 | . 64879 | 484 |
| 23 | .40047 | . 94886 | 317 | . 39931 | .04886 | 401 | . 40037 | . 34886 | 474 | .39977 | . 04885 | 521 |
| 5.5 | .450*0 | .04812 | 363 | .44897 | .04815 | 444 | .45010 | .04813 | 517 | .45009 | .04813 | 574 |
| 21 | .50039 | .04648 | 392 | . 49927 | .04652 | 503 | .50024 | .04649 | 576 | .50020 | .04648 | 029 |
| 50 | . 55025 | . 94 394 | 433 | .54927 | .04398 | 528 | . 55342 | . 04 392 | 600 | .55633 | . 04393 | 635 |
| 19 | . 60020 | .04775 | 488 | .59931 | .04683 | 547 | . 66071 | .04073 | 631 | .60018 | .04078 | 719 |
| 18 | .65932 | .03711 | 535 | . 64 917 | .03719 | 576 | .65026 | .03711 | 646 | .65015 | .03711 | 619 |
| 17 | .71026 | .03219 | 490 | .70397 | .03229 | 575 | .71034 | .03218 | 633 | .70977 | .03222 | 181 |
| 16 | . 78026 | .02561 | 382 | .77912 | .02572 | 193 | .78068 | .02565 | 110 | .78612 | .02562 | 378 |
| 15 | .85021 | .01814 | 091 | .84903 | .01826 | 004 | . 85 00 1 | .01815 | . 319 | .85010 | .01815 | .027 |
| 14 | .92021 | .01021 | .048 | .91929 | .01032 | .106 | .92012 | .01023 | .124 | .92005 | .01023 | .133 |
| 1.3 | .98519 | .00265 | .165 | .98387 | .00283 | .197 | . 98611 | .00251 | .217 | .98498 | .00267 | . 213 |

| | SECTION | 5 | | SECTION | 6 | | SECTION | 7 | |
|-----|---------|---------|-------|---------|---------|-------|----------|---------|-------|
| NP | x/L | 1/1 | CP | X/L | Z/L | CP | X/L | 1/1 | CP |
| 15 | .94977 | 00731 | .187 | .94953 | 00734 | .188 | .94946 | 00735 | . 174 |
| 14 | .84954 | 01922 | .089 | .84934 | 01823 | .106 | . 84 958 | 01821 | .103 |
| 13 | . 75003 | 07951 | 036 | .74963 | 02854 | .033 | .75002 | 02850 | . 052 |
| 12 | .64998 | 03713 | 228 | . 64980 | 03714 | 109 | . 66757 | 03715 | 039 |
| 11 | . 54983 | 04397 | 615 | .54955 | 34396 | 625 | . 54967 | 04398 | 594 |
| 10 | .44990 | 04914 | 614 | .44993 | 04814 | 574 | . 44970 | 04816 | 538 |
| 9 | .35016 | 04880 | 586 | . 34990 | 04880 | 528 | . 34973 | 34879 | 500 |
| 8 | .25012 | 04646 | 464 | .24997 | 04645 | 532 | . 24976 | 34645 | 458 |
| 1 | .15054 | 04081 | 361 | .15016 | 04078 | 510 | .14996 | 34075 | 510 |
| 6 | .10029 | 03625 | 555 | .10019 | 03624 | 417 | . 10039 | 03627 | 570 |
| 5 | .06550 | 01203 | 571 | .06521 | 03198 | 360 | .06536 | 03200 | 522 |
| 4 | .04330 | 02788 | 571 | .03999 | 02803 | 633 | .04025 | 02813 | 761 |
| 3 | .02030 | 02282 | 433 | .01985 | 89220*- | 435 | . 01985 | 02266 | 513 |
| 2 | .00587 | 01314 | . 441 | .00567 | 01305 | . 300 | .00578 | 01313 | . 181 |
| 1 | .00057 | .00 579 | . 232 | .00068 | .00449 | .803 | .00050 | .00361 | .748 |
| 45 | .00104 | .00727 | .238 | .00190 | .00749 | .548 | .00193 | .00757 | .521 |
| 44 | .00525 | .01361 | .236 | .00623 | .01365 | .245 | .00630 | . 31368 | .147 |
| 43 | .01228 | .01273 | 121 | .01209 | .01851 | 124 | .01265 | .01889 | 205 |
| 42 | .02006 | .02272 | 480 | .01985 | .02268 | 527 | .02012 | .02277 | 557 |
| 41 | .02998 | .02581 | 657 | .02991 | .02584 | 672 | .02999 | .02583 | 751 |
| 40 | .04955 | .02966 | 491 | .04972 | .02967 | 620 | . 04995 | .02970 | 722 |
| 59 | .07445 | .0:322 | 341 | .07485 | .03329 | 407 | .07482 | . 33327 | 568 |
| 58 | .09994 | .03621 | 156 | .09991 | .03620 | 441 | . 69990 | .03621 | 591 |
| 57 | . 13926 | .03995 | 402 | .13983 | .03994 | 521 | . 13976 | . 33995 | 549 |
| 56 | . 17979 | .04285 | 417 | .17997 | .04272 | 574 | . 17991 | .04288 | 497 |
| 55 | . 22001 | .04515 | 456 | .22010 | .04514 | 577 | . 21990 | .04514 | 483 |
| 54 | .25954 | .04681 | 485 | .25976 | .04681 | 546 | . 25976 | .04682 | 490 |
| 33 | .29993 | .04900 | 536 | . 29994 | .04799 | 525 | . 29986 | .04800 | 479 |
| 32 | . 33785 | .04969 | 585 | .34008 | .04869 | 528 | . 33979 | .04868 | 494 |
| 51 | .37986 | .04892 | 619 | . 37976 | .04891 | 543 | . 37976 | .04892 | 502 |
| 50 | . 41959 | .04867 | 617 | .41988 | .04867 | 560 | .41983 | .04868 | 541 |
| 23 | . 45975 | .04789 | 634 | . 45976 | .04790 | 588 | .45970 | .04789 | 550 |
| 85 | .49960 | .04650 | 636 | . 49974 | .04649 | 605 | . 49987 | .04649 | 575 |
| 27 | .53959 | .04452 | 658 | .53988 | .04450 | 636 | .53975 | .04452 | 593 |
| 26 | .57951 | .04214 | 664 | .57991 | .04210 | 592 | .57785 | .04214 | 428 |
| 25 | .61987 | .03938 | 349 | .61970 | .03939 | 179 | . 61976 | .03940 | 101 |
| 24 | .65968 | .03637 | 164 | .65979 | . 03635 | 072 | . 65966 | .03636 | 011 |
| 53 | .69970 | .03308 | 096 | .69976 | .03308 | 012 | .69979 | .03308 | .029 |
| 2.5 | . 73940 | .02949 | 039 | . 75970 | .02946 | .028 | . 73980 | .32946 | . 051 |
| 21 | .77760 | .02567 | .012 | .77952 | .02567 | .059 | .77942 | .02570 | . 268 |
| 20 | .81937 | .02157 | .061 | .81965 | .02154 | .089 | . 81985 | .02150 | .089 |
| 19 | . 95755 | .01709 | .104 | .85983 | .01707 | .120 | .85943 | .01712 | .115 |
| 13 | .89940 | .01246 | .143 | . 89777 | .01241 | .149 | . 89961 | .01243 | . 143 |
| 17 | .94777 | .00755 | .187 | .94 361 | .00742 | . 191 | .94959 | .00733 | .176 |
| 16 | .98505 | .00266 | . 550 | .93462 | .00272 | .225 | .98455 | .00274 | . 212 |

TABLE B1- 25

(P

. 162 - .000 - .548 - .440 - .548 - .447 - .262 - .277 - .276 - .278 - .774 - .709 - .389 - .473 - .548 - .548 - .548 - .548 - .548 - .548 - .548 - .548 - .548 - .794 - .

MO = .9208 ALPHA = 1.07 REC = 11.79*10**6

| | SECTION | 1 | | SECTION | 5 | | SECTION | 3 | | SECTION | 4 |
|---|--|--|---|--|--|---|--|---|---|---|--|
| NP | X/L | 1/1 | CP | X/L | 1/1 | CP | X/L | 1/1 | CP | x/L | 2/1 |
| NP 12 11 10 9 9 9 7 7 6 5 5 4 3 2 2 1 3 5 5 2 2 5 2 4 5 2 5 2 4 5 2 5 2 6 5 2 6 1 1 9 1 1 7 1 6 1 5 5 1 6 1 5 1 6 1 5 1 6 1 6 1 5 1 6 1 6 | .95030 .91597 .66593 .66593 .66593 .65589 .65589 .76594 .02012 .00914 .00214 .0 | 00726 02103 03587 04581 04775 04880 04762 04104 02268 01335 00202 01502 02761 03617 04680 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 04412 04800 | .092 -180 -1472 -415 -543 -270 -271 -171 -190 -279 -435 -3649 -288 -256 -258 -257 -299 -308 -314 -559 -417 -451 -559 -417 | .94937 .81705 .66693 .55705 .55705 .26705 .16697 .01922 .00520 .00109 .00109 .00109 .00109 .00109 .00913 .14727 .19909 .250800 .250800 .250800 .250800 .250800 .250800 .250800 .250800 | 00735 02182 05579 04294 04760 04760 04706 04202 02258 02262 01261 00277 00575 01531 02674 033113 02674 03113 04672 04672 04672 04672 04672 04678 04672 04672 04672 04672 04672 04672 04672 04678 04672 04672 04672 04672 04672 04672 04672 04678 04672 04672 04672 04672 04672 04672 04672 04673 04672 04672 04672 04672 04672 04672 04672 04673 04672 046 | -135 -162 -510 -415 -336 -267 -227 -227 -227 -227 -478 -607 -478 -321 -358 -407 -474 -474 -474 -474 -474 -5561 -575 -598 -600 | . 94,999 .81,986 .67,038 .57,033 .57,039 .27,010 .03,91 .005,91 .00 | 00757 02152 03553 04272 04760 04275 04275 04275 02275 01326 00517 00806 01660 02273 03626 04678 04641 04677 04800 04879 04880 04880 04881 04649 04896 04975 05711 02563 02563 03711 02563 03711 02563 03711 02563 03711 02563 03711 02563 03711 02563 03711 02563 03711 02563 | . 154 - 039 - 592 - 557 - 465 - 307 - 206 - 253 - 439 - 844 - 565 - 513 - 773 - 406 - 378 - 408 - 432 - 463 - 465 - 520 - 557 - 605 - 605 | . 94 93 7 . 32223 . 67216 . 57239 . 47220 . 57239 . 47220 . 57255 . 27250 . 17242 . 05017 . 0019 . 00210 . 00893 . 02012 . 03539 . 08011 . 10019 . 15024 . 20016 . 25021 . 30021 . 30021 . 55015 . 55039 . 50020 . 55039 . 550 | 00731 02125 03537 04251 04753 04753 04753 04723 01256 01355 00000 00797 01619 00276 02276 02276 03127 03623 04078 04410 04799 04885 04078 04488 04078 0 |
| | 98518 | .01021 | .051 | .91727 | .01032 | 009 -099 -187 | .92012 .92012 | .01815 | .103 | .85010 .92035 .98498 | .01815 |
| | SECTION | | | SECTION | | | SECTION | | | | |
| NP | x/L | 2/1 | CP | X/L | 2/1 | CP | X/L | 2/1 | CP | | |
| 154 110 110 110 110 110 110 110 110 110 11 | | - 90732 - 01732 - 02751 - 04714 - 04714 - 04816 - 04081 - 03623 - 03623 - 03788 - 03788 - 03788 - 03787 - 01314 - 00379 - 01361 - 02861 - 03822 - 013621 - 03822 - 014873 - 02782 - 014873 - 02782 - 014873 - 02782 - 014873 - 02772 - 0277 | 168 - | 94953 84936 74963 54995 54995 24997 15016 10017 06521 03999 01985 00190 00190 00120 00120 00120 00120 00120 00120 01209 10293 10293 10293 10293 10293 10393 17994 41986 41986 41986 57996 65777 65777 65777 77962 85987 77962 85987 77962 85987 77962 85987 77962 85987 77962 85987 77962 85987 77962 85987 89977 94867 | - 00734 - 01823 - 02854 - 04396 - 044816 - 04645 - 046478 - 03524 - 03198 - 01305 - 0145 - 02568 - 01565 - 04514 - 04689 - 04689 - 04689 - 04669 - 04669 - 0479 - 04869 - 04669 - 0479 - 04869 - 04669 - 0479 - 04869 - 0479 - 04869 - 04669 - 0479 - 047 | 169 069 069 069 069 069 069 069 069 069 0 | - 4246 - 84058 - 75002 - 64357 - 54967 - 34970 - 34976 - 10039 - 10039 - 00158 - 00 | 007350182102850037150439804816148790464504676036627038000281302266013130236102577036210389902883048920486804868048680445204868048 | . 155 . 085 . 045 . 027 . 586 . 527 . 484 . 459 . 471 . 512 . 466 . 513 . 429 . 224 . 465 . 913 . 940 . 957 . 960 . 951 . 951 . 951 . 952 . 952 . 952 . 952 . 952 . 953 . 952 . 953 . 953 | | |

TABLE B1- 26

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2298

MO = .2180 ALPHA = 2.05 REC = 11.76*10**6

| | SECTION | , | | SECTION | 2 | | SECTION | 3 | | SECTION | 4 | |
|---|--|---|---|--|--|---|--|---|---|---------|--|--|
| NP | X/L | 1/1 | Co | x/L | 1/L | CP | X/L | 2/1 | CP | x/L | 1/1 | CP |
| 12 11 10 9 8 7 6 5 4 3 2 3 3 2 3 3 2 3 2 3 2 3 2 3 2 3 2 3 | .95030 .95030 .91507 .66505 .56598 .46509 .26570 .16574 .04003 .000314 .000314 .000316 | - 00726 - 007193 - 03587 - 04501 - 04773 - 04702 - 04702 - 04702 - 04702 - 01502 - 01502 - 01502 - 01502 - 01502 - 01502 - 01502 - 04413 - 04647 - 04900 - 04870 - | 083 5 - 158 6 - 158 6 - 159 6 - 317 6 - 317 6 - 317 6 - 185 6 - 119 6 - 100 6 | 27.1. 24.737 24.737 24.737 24.735 24.705 26.70 | - 00735 - 002182 - 03579 - 04769 - 04769 - 04706 - 04202 - 02958 - 01202 - 02958 - 01202 - 02553 - 01207 - 00553 - 01207 - 00553 - 01207 - 0405 - 0405 - 04069 - 04682 - 04682 - 04682 - 04683 - 04682 - 04683 - 04 | .101 -089 -481 -302 -224 -173 -124 -173 -140 -498 -47 -555 -011 -560 -819 -776 -317 -317 -411 -435 -453 -453 -453 -453 -453 -453 -453 | - 94999 - 31986 - 67008 - 57033 - 47037 - 57069 - 27010 - 05516 - 02010 - 02010 - 02010 - 02010 - 02010 - 02010 - 02010 - 03508 - 0350 | - 00 737 - 00 152 - 03553 - 04 272 - 04 760 - 04 760 - 04 224 - 02 2975 - 01 326 - 00 317 - 00 806 - 01 90 806 | 132 -030 -557 -5527 -436 -262 -180 -107 -117 -514 -829 -504 -601 -306 -714 -411 -471 -513 -471 -513 -542 -565 -666 -666 -705 -705 -705 -705 -705 -705 -705 -705 | | - GJ751 - GJ751 - GJ751 - GJ752 - GJ5537 - J4261 - J4753 - J4253 - J4264 - J4264 - J4264 - J479 - J4379 - J4855 - J4865 - J486 | .140 .024 .642 .510 .405 .500 .205 .151 .134 .478 .325 .489 .375 .489 .375 .470 .526 .587 .470 .526 .743 .528 .258 .258 .258 .258 .258 .258 .258 |
| | SECTION | 5 | | SECTION | 6 | | SECTION | . 7 | | | | |
| NP | X/L | 1/1 | C.P. | X/L | 1/1 | CP | X/L | 2/1 | CP | | | |
| 154 115 117 100 87 65 44 43 43 44 43 43 43 43 43 43 43 43 43 | 04077 | - 00731 - 01925 - 02851 - 037137 - 04916 - 04980 - 04081 - 03625 - 03203 - 02782 - 01114 - 01770 - 017 | .145 .073 .006 .339 .566 .502 .370 .184 .193 .194 .193 .194 .193 .489 .806 .076 .076 .077 .292 .648 .749 .749 .749 .749 .749 .749 .749 .749 | . 04 95 3 . 84 93 4 . 74 96 7 . 64 98 9 . 54 95 9 . 44 99 9 . 15 016 . 10 019 . 03 99 9 . 03 98 7 . 00 16 23 . 01 93 5 . 02 99 1 . 04 97 2 . 07 48 8 . 09 99 1 . 13 98 3 . 17 99 9 . 22 010 . 25 99 6 . 4 1 98 8 . 4 5 9 9 9 . 4 1 98 8 . 57 99 1 . 65 97 9 . 75 97 0 . 77 96 9 . 78 97 0 . 77 96 9 . 78 97 0 . 77 97 0 . 77 96 9 . 81 96 9 | - 00734 - 01823 - 02854 - 03714 - 04496 - 04496 - 04496 - 03624 - 03528 - 03626 - 03626 - 03626 - 03798 - 02803 - 0 | .154 .071 .029 .019 .567 .506 .459 .239 .237 .238 .237 .204 .445 .776 .429 .095 .290 .674 .877 .877 .877 .877 .877 .877 .877 .8 | .94946 .84958 .75002 .64957 .54967 .34973 .24976 .04025 .01985 .00193 .00536 .00193 .00536 .00193 .00536 .00193 .019300 .019300 .019 | - 0C755 - 01821 - 0285) - 03715 - 04493 - 04815 - 04076 - 03027 - 03200 - 02813 - 00551 - 00151 - 00757 - 01503 - 02813 - 0281 | . 152 . 061 . 024 - 006 . 590 - 549 . 506 - 443 - 467 - 416 - 527 - 272 . 725 . 407 - 362 - 704 - 911 - 947 - 941 - 947 - 741 - 640 - 625 - 640 - 640 - 625 - 640 - 625 - 640 - 625 - 640 - 640 - 625 - 640 - 625 - 640 - 625 - 640 - 625 - 640 - 625 - 640 - 625 - 640 - 640 | | | |

TABLE B1- 27

TEST 2299

MO = .9190 ALPHA = 3.07 REC = 11.77*10**6

| | SECTION | • | | SECTION | 5 | | SECTION | 3 | | SEC1104 | 4 | |
|-----|---------|---------|-------|----------|--------|------|-----------|----------|-------|---------|---------|-------|
| NP | X/L | 2/1 | CP | X/L | 1/1 | CP | X/L | 1/1 | CP | X/L | 111 | Cn |
| 12 | .95030 | 00726 | .063 | .94937 | 00735 | .081 | . 94999 | 00737 | . 392 | .94937 | 00731 | .105 |
| 11 | . 81527 | 72193 | 173 | . 81705 | 02182 | 103 | .81986 | 02152 | 374 | . 92225 | 02125 | 004 |
| 10 | .66593 | 03587 | 289 | .66698 | 03579 | 344 | .67008 | 03553 | 490 | .67216 | 03537 | 608 |
| 9 | .56598 | 04301 | 362 | . 56 705 | 04294 | 429 | .57033 | 04272 | 488 | .57250 | 04261 | 582 |
| 8 | . 46500 | 04773 | 286 | .46705 | 04769 | 349 | . 47337 | 04760 | 598 | .47223 | 04753 | 471 |
| 7 | . 36590 | 04889 | 196 | . 36 705 | 04889 | 253 | . 37009 | 04890 | 52 3 | . 57235 | 04891 | 560 |
| 6 | .26579 | 04707 | 140 | . 26705 | 04706 | 172 | . 27010 | 04716 | 209 | .27250 | 04725 | 251 |
| 5 | .14594 | 04194 | 063 | .16699 | 04202 | 111 | .17010 | 04224 | 121 | .17242 | 04239 | 144 |
| 4 | .04995 | 02971 | 019 | .04909 | 02958 | 332 | .05016 | 32975 | 011 | .05017 | 02974 | 036 |
| 3 | .02002 | 02268 | 027 | .01922 | 02242 | 008 | .02010 | 02275 | .007 | .01999 | 02263 | 002 |
| 2 | .00503 | 01333 | .570 | .00520 | 01261 | .571 | -00591 | 01326 | . 585 | .00611 | 01555 | .569 |
| 1 | .00034 | .00292 | .849 | .00031 | .00277 | .831 | .00042 | .00517 | .810 | .00000 | .00000 | . 809 |
| 54 | .00216 | .00.05 | . 544 | .00103 | .00553 | .495 | .00222 | .00806 | . 446 | .00210 | .00787 | . 428 |
| 33 | .00366 | .01592 | 015 | .00789 | .01531 | 084 | .00914 | .01640 | 137 | .00893 | .01619 | 129 |
| 32 | .02037 | .02285 | 510 | .01906 | .02232 | 619 | . 02036 | .02273 | 673 | .02612 | .02276 | 122 |
| 31 | .03525 | .02701 | 850 | .03402 | .02674 | 882 | .03508 | .02698 | 717 | .03550 | . 02701 | 935 |
| 30 | .06056 | .01130 | 769 | .05911 | .03113 | 857 | . 05022 | .03128 | 887 | .06011 | .03127 | 597 |
| 50 | .00050 | .03617 | 385 | .09913 | .03613 | 748 | . 10029 | . 33626 | 809 | .10019 | .03623 | 317 |
| 28 | .15737 | . 04080 | 426 | .14927 | .04071 | 532 | . 15032 | .04078 | 756 | .15024 | .04678 | /82 |
| 27 | .20044 | .04413 | 359 | .19909 | .04405 | 423 | . 23029 | .34411 | 728 | .20016 | .04410 | 769 |
| 26 | .25039 | .04647 | 420 | . 25030 | .04649 | 465 | . 25024 | .04647 | 618 | .25021 | . 64647 | 764 |
| 25 | .30050 | .04900 | 388 | . 29925 | .04798 | 507 | - 30008 | .04800 | 505 | .30021 | .04779 | 759 |
| 24 | .35050 | .04270 | 417 | .34927 | .04878 | 484 | . 35024 | . 34 879 | 563 | .35015 | .04879 | 751 |
| 23 | .40047 | .04886 | 432 | .39931 | .04886 | 531 | .40037 | .04886 | 607 | . 39977 | .04885 | 591 |
| 2.2 | .45030 | .04812 | 463 | .44897 | .04815 | 551 | . 45010 | -04813 | 621 | .45039 | .04813 | 648 |
| 21 | .50030 | .04648 | 476 | .49927 | .04652 | 590 | .50024 | .04649 | 675 | .50020 | .04649 | 711 |
| 20 | .55025 | .04394 | 487 | .54927 | .04398 | 615 | .55042 | .04392 | 597 | .55033 | .04393 | 763 |
| 19 | .60029 | .04075 | 547 | .59931 | .04083 | 627 | .60071 | .04073 | 719 | .60018 | .04078 | 550 |
| 13 | .65032 | .03711 | 600 | .64917 | .03719 | 644 | .65026 | .03711 | 721 | . 65015 | .03711 | 214 |
| 17 | .71026 | .03219 | 632 | .70897 | .03229 | 646 | .71034 | .03218 | 210 | .70977 | .03222 | 154 |
| 16 | .78026 | .02561 | 481 | .77912 | .02572 | 172 | .78008 | .02563 | 100 | .78012 | .02552 | 036 |
| 15 | . 85021 | .01814 | 115 | .84903 | .01826 | 039 | . 85 00 1 | .01815 | 027 | . 85010 | .01815 | 316 |
| 14 | .92027 | .01021 | .039 | . 91927 | .01032 | .047 | .92012 | .01023 | .046 | .92045 | .01023 | . 352 |
| 13 | .98519 | .00265 | .146 | .98387 | .00283 | .116 | . 98611 | .00251 | .117 | .98498 | .00257 | .111 |

| | SECTION | 5 | | SECTION | 6 | | SECTION 7 | | | |
|----|---------|----------|-------|-----------|---------|------|-----------|----------|--------|--|
| NP | X/L | 7/1 | CP | X/L | 7/L | CP | X/L | Z/L | CP | |
| 15 | .94977 | 20731 | .117 | .94953 | 00734 | .124 | .94946 | 00735 | .107 | |
| 14 | .84754 | 01922 | .051 | .84934 | 01823 | .054 | . 84 958 | 01821 | .040 | |
| 13 | .75003 | 02951 | 033 | .74963 | 02854 | .014 | .75002 | 02850 | . 314 | |
| 12 | - 44299 | 03713 | 611 | .64980 | 03714 | 216 | . 64757 | 03715 | 072 | |
| 11 | .54983 | 04397 | 525 | .54755 | 04396 | 502 | . 54967 | 34 398 | 606 | |
| 10 | .44227 | 04814 | 525 | .44998 | 04814 | 546 | .44970 | 04816 | 541 | |
| 9 | .35016 | 04880 | 454 | . 34 990 | 04880 | 477 | . 34773 | 34879 | 495 | |
| 8 | . 25012 | 04646 | 321 | . 24997 | 04645 | 420 | - 24976 | 04645 | 420 | |
| 7 | .15054 | 04081 | 176 | . 15016 | 04078 | 330 | . 14996 | 04076 | 589 | |
| 6 | .10229 | 01625 | 114 | .10019 | 03624 | 553 | .10039 | 03627 | 408 | |
| 5 | .06550 | 03203 | 088 | .06521 | 03198 | 146 | .05536 | 05200 | 345 | |
| 4 | .04939 | 02788 | 089 | .03999 | 02803 | 152 | .04025 | 02813 | 314 | |
| 3 | .02010 | 02282 | 048 | .01985 | 02268 | 087 | . 01985 | 02266 | 213 | |
| 2 | .00527 | 01314 | .555 | -00567 | 01305 | .507 | .00578 | 01313 | .358 | |
| 1 | -00057 | .00379 | . 785 | .00065 | .00449 | .755 | .00050 | -00361 | .705 | |
| 45 | .00104 | .00727 | .003 | -00190 | .00749 | .567 | .00193 | .00757 | . 348 | |
| 44 | .00526 | .01361 | .004 | .00623 | .01365 | .026 | .00630 | .01369 | 064 | |
| 43 | .01279 | .01873 | 356 | .01207 | .01851 | 367 | .01265 | .31889 | 426 | |
| 42 | -02206 | .02272 | 728 | .01983 | 89220 | 727 | .02012 | 17550. | 759 | |
| 41 | .02288 | .02581 | 912 | .02991 | .02584 | 922 | .02999 | .02583 | 967 | |
| 40 | .04265 | 46650 | 922 | -04972 | .02967 | 950 | .04995 | .02970 | -1.013 | |
| 39 | -07443 | .03322 | 876 | .07485 | .03329 | 915 | .07482 | .03327 | -1.013 | |
| 38 | .09794 | .03621 | 838 | .09991 | .03620 | 878 | .09990 | .03621 | 977 | |
| 37 | .13986 | .03995 | 818 | .15995 | .03994 | 884 | .13976 | .03975 | 325 | |
| 35 | .17979 | .04286 | 791 | .17999 | .04272 | 909 | . 17991 | .04288 | 741 | |
| 35 | .22001 | .04515 | 801 | .22010 | .04514 | 907 | . 21990 | -04514 | 712 | |
| 34 | . 25754 | -04681 | 803 | .25996 | .04681 | 783 | . 25976 | . 04 682 | 703 | |
| 33 | .29988 | -04800 | 820 | . 29994 | -04799 | 744 | . 29986 | .04800 | 584 | |
| 35 | . 35095 | . 04 369 | 848 | .34005 | .04869 | 729 | . 33979 | .04868 | 681 | |
| 31 | . 37986 | .04892 | 880 | . 37 99 6 | -04891 | 729 | .37976 | .04892 | 683 | |
| 30 | 41959 | .04967 | 886 | .41989 | .04867 | 729 | . 41988 | .04869 | 715 | |
| 29 | 45975 | .04789 | 693 | 45976 | .04790 | 698 | 45970 | .04737 | 714 | |
| 28 | 49260 | .04650 | 369 | .49996 | .04649 | 347 | 49787 | .34647 | 478 | |
| 27 | | | 284 | .53988 | .04450 | 255 | | | 360 | |
| | .53959 | .04452 | 237 | .57991 | .04210 | | . 53975 | .04452 | 274 | |
| 26 | .57961 | .04214 | 203 | .61970 | -03939 | 205 | .57985 | .04214 | 155 | |
| 25 | | | 163 | .65979 | .03635 | 159 | .61976 | | 059 | |
| 23 | .65968 | .03437 | 119 | 69976 | .03368 | 112 | . 65766 | .03636 | | |
| | .69070 | | | | | 064 | . 69979 | .03309 | .005 | |
| 55 | .73940 | . 22749 | 075 | .73970 | .02946 | 625 | .73980 | .02945 | .018 | |
| 21 | -77760 | .02567 | 037 | .77952 | .02567 | -011 | . 77942 | .02570 | .008 | |
| 50 | . 81937 | .02157 | .006 | .81965 | .02154 | -048 | . 31985 | .02150 | 001 | |
| 19 | .85955 | -01709 | .043 | .85980 | -01707 | -075 | . 85943 | .01712 | 006 | |
| 15 | .37940 | .01746 | -081 | .89977 | .01241 | .103 | . 89961 | .01243 | .003 | |
| 17 | .94727 | .00755 | .119 | .96861 | . 30742 | -137 | . 94959 | .00733 | .021 | |
| 16 | .98506 | .00266 | .156 | .98462 | .00272 | .171 | .98455 | .00274 | .069 | |

MO = .9262 ALPHA = 4.08 REC = 11.73*10**6

| | SECTION | 1 | | SECTION | 2 | | SECTION | | | 2561104 | | |
|-----|---------|--------|------------|------------------|--------|--------------|---------|----------------|--------|----------|----------------|--|
| NP | x/L | 1/1 | Co | X/L | 1/1 | CP | X/L | 1/1 | CP | X/L | 1/L | |
| 12 | .95030 | 00726 | .048 | .94937 | 00735 | .043 | .94999 | 00737 | .045 | .94937 | 00751 | |
| 10 | .81597 | 02193 | 205 | .81705 | 02182 | 139 | .67008 | 02152 | 148 | .82223 | 02125 03537 | |
| 9 | -56599 | 04301 | 311 | . 56 705 | 04294 | 363 | .57033 | 04272 | 436 | .57230 | 04261 | |
| 8 | . 46599 | 04773 | 247 | .46736 | 04769 | 314 | .47037 | 04763 | 351 | . 47 220 | 04753 | |
| 7 | .36580 | 04889 | 150 | .36735 | 04706 | 205 | .37909 | 04715 | 267 | . 27250 | 04723 | |
| 5 | .16594 | 04194 | 007 | .16699 | 04202 | 051 | . 17016 | 04224 | 058 | . 17242 | 04238 | |
| 3 | .04993 | 02268 | .075 | .04909 | 02958 | .057 | .05016 | D2975 D2275 | .078 | .05017 | 02974 | |
| 2 | .00593 | 01333 | .637 | .00523 | 01261 | .645 | .00591 | 01326 | . 656 | .00611 | 01355 | |
| 1 | .00034 | -00292 | . 938 | .00031 | .00277 | .923 | . 00042 | .00317 | . 795 | .00000 | .00000 | |
| 34 | .00216 | .00802 | 071 | .00108 | .00553 | 135 | .00222 | .01640 | 171 | .00210 | .01619 | |
| 32 | .02037 | .02285 | 555 | -01906 | .02232 | 667 | .02336 | .02273 | ~.711 | .02012 | .02276 | |
| 31 | .03525 | .02701 | 855 | .03402 | .02674 | 910 902 | .03508 | .02693 | 954 | .03550 | .02701 | |
| 29 | .09959 | .01617 | 390 | .09913 | .03613 | 827 | .10029 | .03626 | -, 860 | .10019 | .03623 | |
| 28 | . 15037 | .04080 | 478 | -14927 | .04071 | 769 | . 15032 | .04078 | 318 | .15024 | .04410 | |
| 27 | .20044 | .04413 | 517 | .19909 .25080 | .04405 | 742 | . 20029 | .04411 | 303 | .20016 | .04647 | |
| 25 | .30050 | 04800 | 379 | -29925 | -04798 | 569 | .30008 | .04800 | 793 | . 30021 | .04799 | |
| 24 | .35050 | .04879 | 418 | .36927 | .04878 | 581 | . 35024 | .04886 | 797 | .35015 | .04885 | |
| 22 | .45050 | .04812 | 472 | .44897 | .04815 | 543 | .45010 | .04813 | 657 | . 45039 | . 04813 | |
| 21 | .50039 | .04648 | 487 | .49927 | .04652 | 599 | .50024 | .04649 | 699 | .50020 | .04048 | |
| 19 | .55025 | .04075 | 478 | .54927 | .04398 | 635 | .55042 | .04073 | 653 | .60018 | .04078 | |
| 18 | .65732 | .03711 | 583 | -64917 | -03719 | 633 | . 65126 | .03711 | 605 | .65615 | .03711 | |
| 17 | .71026 | .03219 | 634 | .70897 | .03229 | 633 | .71034 | .03218 | 187 | .70977 | .03222 | |
| 15 | . 85021 | .01814 | 140 | .84903 | .01826 | ~.045 | . 85001 | .01815 | 051 | .85010 | .01815 | |
| 14 | .92327 | .01021 | .021 | .91929 | .01032 | .020 | .92012 | .01023 | .061 | .92065 | .01025 | |
| ., | . *9213 | .00207 | | . +0 ,5, | .00.00 | | ., | ,,,,,, | | .,,,,, | | |
| | SECTION | 5 | | SECTION | 6 | | SECTION | 7 | | | | |
| NP | X/L | 111 | CP | X/L | 7/1 | CP | X/L | 1/1 | | | | |
| 15 | .94977 | 00731 | 009 | .94953 | 00734 | 006 | .94946 | 00735 | | | | |
| 14 | .84954 | 01922 | 004 | .84934 | 01823 | 005 | .84958 | 01821 | 009 | | | |
| 13 | .75003 | 02851 | 117 580 | .74963 | 02854 | 030 | .75002 | 02850 | 022 | | | |
| 11 | . 54943 | 04397 | 476 | .54955 | 04396 | 574 | . 54967 | 34398 | 376 | | | |
| 10 | .44990 | 04814 | 476 | .44998 | 04814 | 509 | .44970 | 04816 | 520 | | | |
| 8 | - 25012 | 04646 | 264 | .24997 | 04645 | 428 | .34973 | 04645 | 459 | | | |
| 7 | .15054 | 04081 | ~.115 | . 15015 | 04078 | 271 | .14996 | 04076 | 339 | | | |
| 5 | .06550 | 03203 | 043 | .10019 | 03624 | 151 | .06536 | 03627 | 346 | | | |
| 4 | .04030 | 02788 | .008 | .01985 | 02268 | 066 | .04025 | 02813 | -, 217 | | | |
| 2 | .00587 | 01314 | -624 | .03567 | 01305 | .031 .554 | .01985 | 02266 | .469 | | | |
| 45 | .00057 | .00379 | 772 | .00063 | -00449 | .737 | . 00050 | .00361 | . 691 | | | |
| 44 | .00526 | .01361 | 050 | .03190 | .00749 | 037 | .00193 | .00757 | 101 | | | |
| 43 | .01228 | .01873 | 398 | .01207 | .01851 | 410 | .01265 | .01889 | 465 | | | |
| 41 | .02933 | .02272 | 765 | .01983 | .02268 | 739 | .02012 | .02277 | 197 | | | |
| 40 | .04766 | .02966 | 966 | .04972 | .02967 | 990 | . 04995 | .02970 | -1.048 | | | |
| 39 | .09994 | .03522 | 922 | .07488 | .03329 | 955 923 | .07482 | .03327 | -1.050 | | | |
| 37 | . 13996 | .03995 | 871 | .13983 | .03994 | 930 | .13976 | .03995 | 849 | | | |
| 36 | 17979 | .04786 | 857 | .17999 | .04272 | 955 | .17991 | .04288 | 765 | | | |
| 34 | . 25964 | .04681 | 861 | .25996 | .04681 | 756 | . 25976 | .04 682 | 731 | | | |
| 33 | . 33985 | .04869 | 868 | . 29994 | .04799 | 553 | . 33979 | .04800 | 621 | | | |
| 31 | . 37986 | .04892 | 418 | . 37994 | .04891 | 413 | . 37976 | .04892 | 470 | | | |
| 30 | 45975 | .04967 | 399 | .41988 | .04867 | 383 | .41988 | .04789 | 408 | | | |
| 29 | 49940 | .04650 | 360 | .49994 | .04649 | 356 | .45970 | .04647 | 365 | | | |
| 27 | .53952 | .04457 | 351 | .53988 | .04450 | 296 | .53975 | .04452 | 265 | | | |
| 25 | .61987 | .03939 | 303 | .61970 | .03939 | 232 | . 61976 | .03940 | 236 | | | |
| 24 | .65963 | .03637 | 286 | .65977 | .03635 | 222 | -65966 | . 33636 | -, 198 | | | |
| 2.2 | -73940 | .92949 | 264 | .69976 | .03308 | 207 | . 69979 | .03308 | 168 | | | |
| 21 | .77960 | .02567 | 219 | .77962 | .02567 | 163 | .77942 | .02573 | 116 | | | |
| 19 | . 85955 | .02157 | 193 174 | .81965 | .02154 | 146 | .31985 | .02150 | 102 | | | |
| 18 | . 89740 | .71246 | 162 | .89977 | .01241 | 117 | . 69961 | .01243 | 398 | | | |
| 17 | 01737 | 00765 | | 0.0. | 2021 | | | | . 370 | | | |
| 16 | 94727 | .00755 | 108 | .98467 | .00742 | 081 | . 94959 | .00733 | 086 | | | |

TABLE B1- 29

CP

-. 342 -. 389 -. 452 -. 590 -. 269 -. 033 -. 223 -. 223 -. 223 -. 223 -. 390 -. 340 -. 924 -. 924 -. 924 -. 924 -. 924 -. 924 -. 924 -. 924 -. 925 -. 317 -. 350 -. 317

MO = .9181 ALPHA = 5.06 REC = 11.69*10**6

| | SECTION | , | | SECTION | 2 | | SECTION | 3 | | SECTION | |
|---|--|---|--|--|--|--|--|---|--|---------|--------|
| NP | x/L | in | CP. | x/L | 2/L | CP | X/L | Z/L | CP | X/L | 2/1 |
| 12 | .95030 | 00726 | .049 | .94937 | 00735 | .046 | . 94999 | 00737 | . 053 | .94937 | 00751 |
| 11 | . 81597 | 02193 | 145 | .81705 | 02182 | 109 | . 81986 | 02152 | 111 | . 82223 | 02125 |
| 10 | .56588 | 03587 | 199 | .56705 | 03579 | 232 | .67008 | 03553 | 298 | .67216 | 03537 |
| 8 | .46599 | 04773 | 213 | .46736 | 04769 | 250 | . 47037 | 04760 | 50 ? | .47220 | 04753 |
| 7 | . 36580 | 04889 | 120 | . 36705 | 04889 | 161 | . 37009 | 04890 | 219 | . 37255 | 04891 |
| 6 | . 16594 | 04702 | 050 | .26725 | 04706 | 001 | . 17010 | 04716 | 106 | . 27230 | 04723 |
| 4 | .04993 | 02971 | .148 | .04903 | 02958 | .158 | .05016 | 02975 | . 154 | .05017 | 02974 |
| 3 | 20020. | 02268 | . 192 | .01922 | 02242 | .212 | .02010 | 32275 | . 232 | .01999 | 02268 |
| 5 | -00593 | 01333 | . 694 | .00031 | 01261 | .700 | .00591 | 01326 | .707 | .00611 | 01355 |
| 34 | .00216 | .00802 | . 431 | .00103 | .00553 | . 331 | .00222 | .00806 | . 317 | .00210 | .00787 |
| 3.3 | .00966 | .01592 | 155 | .00789 | .01531 | 221 | .00914 | .01640 | -, 261 | .00893 | .C1619 |
| 32 | .02037 | .02285 | 633 | .01936 | .02232 | 751 | .02036 | .02273 | -1.036 | .03530 | .02701 |
| 30 | -06056 | .03130 | 942 | .05911 | .03113 | 991 | .06022 | .03128 | -1.313 | .06011 | .05127 |
| 29 | .09959 | .03617 | 741 | .09913 | . 03613 | 921 | .10029 | .03626 | 952 | .10019 | .03623 |
| 28 | .15037 | .04680 | 514 | .14927 | .04071 | 862 | . 15032 | .04411 | 915 | . 15024 | .04410 |
| 26 | -25739 | .04647 | 409 | .25 08 0 | .04649 | 849 | . 25024 | .04647 | 896 | .25021 | .04647 |
| 25 | .30050 | .04800 | 650 | . 29925 | .04798 | 625 | . 30008 | .04800 | 887 | .30021 | .04799 |
| 24 | . 35050 | .04886 | 452 | .34927 | .04878 | 650 | . 35024 | .04879 | 995 | .35615 | .04879 |
| 55 | .45030 | .04912 | 518 | .44 897 | .04815 | 624 | .45010 | .04813 | 910 | .45039 | .04813 |
| 21 | - 50039 | .04648 | 539 | -49927 | .04652 | 631 | .50024 | .04649 | 393 | .50020 | .04648 |
| 19 | .55025 | .04394 | 511 | .54927 | .04398 | 658 | .55042 | .04392 | 731 | .55033 | .04078 |
| 19 | .65032 | .03711 | 616 | .64917 | .03719 | 676 | .65026 | .03711 | 572 | . 65015 | .03/11 |
| 17 | .71026 | . 23219 | 662 | .70897 | .03229 | 632 | .71034 | .03218 | 285 | .70977 | .03222 |
| 16 | .78026 .85021 | .02561 | 125 | .84903 | .02572 | 138 | . 78008 | .07563 | 186 | .78012 | .02562 |
| 14 | .97027 | .01021 | .024 | .91929 | .01032 | .026 | .92012 | .01023 | .017 | .92075 | .01025 |
| 13 | . 98518 | .00265 | .127 | .98387 | .00283 | .030 | .98611 | .00251 | .089 | .98498 | .00267 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | SECTION | | | SECTION | | | SECTION | | | | |
| MP | X/L | 2/1 | CP | X/L | 2/1 | CP | X/L | 1/L | CP | | |
| | | | | | | | | | | | |
| 15 | -94977 | 00731 | 077 | .94953 | 00734 | 366 | . 94946 | 00735 | 071 | | |
| 15 14 13 | . 25003 | 01922 | 077 071 086 | . 74963 | 00734 01823 02854 | 077 | .94946 .34958 .75002 | 00735 01821 02850 | 071 392 094 | | |
| 14 13 12 | .84954 .75003 .64988 | 01822 02851 03713 | 086 | .84934 .74963 .64980 | 01823 02854 03714 | 077 068 198 | .34958 .75002 .64957 | 01821 02850 03715 | 392 394 387 | | |
| 14 13 12 11 | .84954 .75003 .64988 .54983 | 01922 02951 03713 04397 | 086 481 | .84934 .74963 .64980 | 01823 02854 03714 04396 | 077 068 198 551 | .34 958 .75002 .64 957 | 01821 02850 03715 04398 | 392 394 387 560 | | |
| 14 13 12 11 10 9 | .84954 .75003 .64988 .54983 .44990 | 01822 02851 03713 04397 04814 04880 | 071 086 481 442 443 343 | .84934 .74963 .6498D .54955 .44998 | 01823 02854 03714 04396 04814 04880 | 077 068 198 551 489 398 | .34958 .75002 .64957 .54967 .44970 | G1821 02850 03715 04398 04816 04879 | 392 394 387 | | |
| 14 13 12 11 10 9 | .84954 .75003 .64988 .54983 .44990 .35016 | 01922 02951 03713 04397 04814 04980 04646 | 086 481 442 443 343 | .84934 .74963 .64980 .54955 .44998 .34970 | 01823 02854 03714 04396 04814 04880 04645 | 077 068 198 551 489 398 | . 34 95 B . 75 D D 2 . 64 95 7 . 54 96 7 . 44 9 7 C . 34 9 7 3 . 24 9 7 6 | 01821 02850 03715 04398 04816 04879 | 392 094 087 560 513 442 360 | | |
| 14 13 12 11 10 9 | .84954 .75003 .64988 .54943 .44990 .35016 .25012 .15054 | 01922 02951 03713 04397 04814 04980 04646 04681 | 071 086 481 442 443 343 224 | .84934 .74963 .6498D .54955 .44995 .34997 .34997 | 01823 02854 03714 04396 04814 04880 04645 04678 | 077 068 198 551 489 398 331 | .3495B .75002 .64957 .54967 .44970 .34973 .24976 | 01821 02850 03715 04398 04816 04879 04645 04076 | 392 394 387 560 513 442 360 | | |
| 14 13 12 11 10 9 | .84954 .75003 .64988 .54983 .44900 .35016 .25012 .15054 .10029 | 01922 02951 03773 04397 04814 04880 04646 04081 03675 03263 | 071 086 481 442 443 343 224 066 012 | .84934 .74963 .64980 .54955 .44998 .34970 .24997 .15015 | 01823 02854 03714 04596 04814 04880 04645 04678 03624 03198 | 077 068 198 551 489 398 331 227 106 | .34 958 .75 002 .64 957 .54 967 .44 970 .34 973 .24 976 .10 03 9 | G1821 02850 03715 04459 04816 04879 04065 04075 03627 | 392 394 387 560 513 442 560 506 306 302 228 | | |
| 14 13 12 11 10 9 8 7 6 5 | .84954 .75003 .64983 .44990 .35016 .25012 .15054 .10059 .66550 | - 01922 - 02951 - 03713 - 04397 - 04814 - 04980 - 04646 - 04081 - 0325 - 03213 | 071 086 481 442 443 343 224 066 .012 .083 | .84936 .74963 .6498D .54955 .44999 .34999 .24997 .15016 .10019 .06521 | 01823 02854 03714 04596 04814 04880 04645 04678 03624 03198 | 077 068 198 551 489 398 331 227 106 | .34 958 .75 002 .64 957 .54 967 .44 970 .34 973 .24 976 .10 03 9 .06 53 6 .04 02 5 | G1821 02850 03715 04398 04816 04879 04665 04076 03627 03200 02813 | 392 394 387 560 513 442 560 306 302 228 154 | | |
| 14 13 12 11 10 9 | .84954 .75003 .64988 .54990 .35016 .25012 .15054 .10029 .06550 .04030 .00587 | 01922 02951 03713 04597 04814 0480 04646 04621 03625 03218 02788 02282 | 071 086 481 442 443 343 224 066 012 083 | .84934 .74963 .6498D .54955 .44998 .34972 .24997 .15016 .10019 .06521 | 01823 02854 03714 04596 04814 04680 04645 04678 03624 03198 02803 02868 | 077 068 198 551 489 331 227 106 011 | .34 95 8 .75 002 .64 95 7 .54 96 7 .44 97 0 .34 97 3 .24 97 6 .14 99 6 .10 03 9 .06 53 6 .04 02 5 .01 98 5 | G1821 02850 03715 04498 04816 04879 04645 04676 03627 03200 02813)2266 | 392 394 387 560 513 442 560 306 302 228 154 J20 | | |
| 14 13 12 11 10 9 8 7 6 5 4 3 2 | 84954 .75003 .64993 .54993 .35016 .25012 .15054 .10029 .06550 .04030 .02030 .00587 | - 01922 - 02951 - 03713 - 04371 - 04814 - 04880 - 04646 - 04681 - 03625 - 032788 - 02282 - 01314 - 06379 | 078 481 442 443 343 224 066 .012 .083 .176 .671 .752 | .84934 .74963 .6498D .54958 .34999 .24997 .15015 .10019 .06521 .03997 .01985 .00068 | - 01825 - 02854 - 03714 - 049814 - 04880 - 04645 - 04678 - 03624 - 03198 - 02803 - 02268 - 01449 | - 077 - 068 - 198 - 551 - 489 - 398 - 331 - 227 - 106 - 011 - 122 - 580 - 698 | . 34 958 .75 002 .64 957 .54 967 .44 976 .34 973 .24 976 .10 939 .06 536 .04 02 5 .01 985 .05 78 | G1821 02850 03715 044816 04879 04675 04675 03200 02813)2266 01313 | 292 394 367 560 513 442 360 362 223 154 320 476 653 | | |
| 14 13 12 11 10 9 8 7 6 5 4 3 2 | 84954 .75003 .64988 .54993 .44990 .35016 .25012 .15054 .10029 .66550 .02030 .02030 .02030 .02030 | - 01922 - 02951 - 03713 - 04397 - 04814 - 04880 - 04646 - 04081 - 03525 - 03513 - 02788 - 02282 - 01314 - 04727 | 071086481442443343224066012083083752140 | 84754 74963 .6498C .54959 .34997 .15015 .10017 .06521 .03997 .01985 .02567 .00068 | - 01823 - 02854 - 03714 - 04596 - 04814 - 04685 - 04645 - 04678 - 03624 - 03198 - 02803 - 02803 - 02268 - 01505 - 0449 | 077 068 198 551 489 598 331 227 106 011 .1122 .580 .698 | 34 95B 75 002 64 957 54 967 54 975 24 976 11 0039 06 536 04 025 01 985 00 578 00 055 00 058 | - G1821 - G2850 - G3715 - G4398 - G4816 - G4879 - G4075 - G4075 - G3200 - G2813 - G266 - G3313 - G266 - G3313 - G361 - G367 - G367 | 192 194 197 560 513 442 160 506 506 228 154 120 476 653 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 4 4 6 6 5 | 84954 75003 64983 54993 54990 35016 25012 150154 10029 66550 04010 02010 00587 00057 00184 00052 | - 01922 - 02951 - 03713 - 04397 - 04481 - 04480 - 04046 - 04046 - 05025 - 05263 - 02282 - 01314 - 06379 - 06727 - 01361 | - 071 - 086 - 481 - 442 - 443 - 343 - 224 - 066 - 017 - 083 - 083 - 176 - 671 - 732 - 140 - 139 - 461 | 84756 74965 64985 54995 34992 34992 15015 10017 06521 03997 01985 02567 00068 00193 00063 | - 01823 - 02854 - 03714 - 04596 - 04814 - 04645 - 04078 - 03624 - 03198 - 02803 - 02268 - 01505 - 00449 - 01749 - 01365 | - 077 - 008 - 198 - 198 - 351 - 449 - 358 - 331 - 227 - 106 - 011 - 011 - 122 - 580 - 265 - 128 | .34.958 .75002 .64.957 .54.967 .54.975 .24.976 .14.996 .10039 .06.536 .04.025 .01.985 .0058 .0058 .0058 .0058 .0058 | - G1821 - 02850 - 03715 - 04595 - 04816 - 04876 - 04076 - 05627 - 03200 - 02813 - 02266 - 01313 - 00757 - 01568 | 192 194 580 513 442 560 506 502 225 154 192 192 188 548 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 45 44 45 42 | 84954 75003 64988 54993 35016 25012 150154 10029 06550 04030 00057 00057 00184 00626 | - 01922 - 02951 - 03713 - 04397 - 04414 - 04480 - 04646 - 0466 - 03213 - 02282 - 01314 - 00127 - 01361 - 01873 - 01873 - 01873 | - 071 - 086 - 481 - 442 - 443 - 343 - 224 - 066 - 017 - 083 - 176 - 671 - 752 - 140 - 139 - 481 - 386 | 84756 74965 6498D 54959 34990 24997 15015 10017 06521 03999 01985 00062 00190 00190 00120 | - 01825 - 02854 - 03714 - 04596 - 04814 - 04880 - 04645 - 04078 - 03624 - 03198 - 02803 - 02268 - 01305 - 00449 - 01365 - 01851 | - 077 - 008 - 198 - 198 - 351 - 449 - 358 - 331 - 227 - 106 - 011 - 011 - 122 - 580 - 265 - 128 | .34.958 .75.002 .64.957 .54.967 .34.970 .34.973 .14.976 .10.039 .06.536 .04.025 .01.985 .00.578 .00.050 .00.050 .00.050 .00.050 .00.050 | - G1821 - 02850 - 03715 - 04595 - 04816 - 04876 - 04076 - 03627 - 03527 - 02813 - 12266 - 01313 - 00361 - 01313 - 00361 - 01368 - 01468 - 01689 - 01889 - 01889 | 192 194 105 560 513 442 106 302 223 134 120 476 653 231 188 548 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 4 4 6 6 5 | 84994 75003 64998 54993 44990 35012 15054 10029 66550 04030 00087 00087 00087 00087 | - 01922 - 02951 - 03713 - 04397 - 04814 - 04880 - 04080 - 04086 - 03263 - 02788 - 02782 - 01314 - 06379 - 06727 - 01361 - 0136 | - 071 - 088 - 481 - 442 - 443 - 343 - 224 - 066 - 017 - 083 - 176 - 671 - 732 - 140 - 139 - 461 - 366 - 1024 | 84756 74965 64985 54958 34992 34992 15015 10017 06521 03997 01985 00193 00193 00193 | - 01823 - 02854 - 03714 - 04396 - 04814 - 04880 - 04645 - 04678 - 03624 - 03198 - 02803 - 02268 - 01505 - 00749 - 01851 - 02268 | - 077 - 008 - 198 - 198 - 551 - 499 - 598 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 827 - 1,026 | . 34.958 . 75.002 . 64.957 . 54.967 . 34.975 . 24.976 . 14.996 . 10.039 . 06.536 . 04.025 . 01.985 . 00.95 . 0 | - G1821 - G2850 - G3715 - G4595 - G4616 - G4676 - G4676 - G5627 - G2813 - G2266 - G1313 - G6561 - G6757 - G1368 - G136 | 192 194 087 560 513 442 1560 306 306 228 154 120 476 653 231 188 488 376 1070 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | - 84954 - 75003 - 64983 - 34990 - 35012 - 15054 - 10029 - 66550 - 04030 - 00057 - 00057 - 00057 - 00057 - 00057 - 00057 - 000587 - 00057 - 000 | - 01922 - 02951 - 03713 - 04897 - 04840 - 04880 - 04646 - 03625 - 03213 - 02788 - 02282 - 01314 - 001727 - 01361 - 01361 - 02782 - 01361 - 02782 - 01361 - 02782 - 01361 - 02782 - 01361 - 02782 - 01361 - 02782 - 027 | - 071 - 088 - 481 - 442 - 443 - 345 - 224 - 086 - 017 - 083 - 176 - 671 - 752 - 140 - 1024 - 1.051 - 1.015 | 84736 747963 64795 54795 44797 24797 10017 10017 10017 10017 10018 | - 0.1825 - 0.2854 - 0.3714 - 0.4996 - 0.4814 - 0.4645 - 0.4675 - 0.4625 - 0.46 | - 077 - 008 - 198 - 551 - 499 - 538 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 255 - 128 - 501 - 122 - 128 - 128 | .34 998 .75 002 .64 997 .54 996 .54 996 .54 976 .10 039 .04 032 .01 985 .00 055 .00 05 | - G1821 - G2850 - G3715 - G4598 - O4816 - O4879 - G4675 - G4675 - G4675 - G3627 - G362 | 192 194 1057 550 513 442 360 362 225 225 126 476 613 188 376 1070 1124 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 5 8 8 8 8 8 8 8 | 84954 75003 64993 54995 44990 15016 25012 15054 10029 66550 04030 02030 00087 00087 00087 00128 00626 0128 02993 07448 | - 01922 - 02951 - 03713 - 04897 - 04814 - 04480 - 04646 - G4081 - 03825 - 03213 - 02282 - 01314 - 01527 - 01282 - 01361 - 01873 - 02772 - 0282 - 01361 - 01873 - 02772 - 0282 - 01367 - 01367 - 02581 - 02582 - 03522 - 03522 | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 066 - 017 - 083 - 176 - 671 - 732 - 140 - 119 - 466 - 1.024 - 1.051 - 1.015 | 84754 74965 64985 54995 34997 15015 10017 06521 103997 01985 00067 00199 00190 00120 0 | - 01825 - 02854 - 03714 - 04596 - 04814 - 04645 - 04678 - 03624 - 03198 - 02268 - 01505 - 01505 - 01505 - 01505 - 02568 - 025688 - 02568 - 02568 - 02568 - 02568 - 02568 - 02568 - 02568 - 025688 - 02568 - 02 | - 977 - 008 - 198 - 551 - 499 - 398 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 827 - 1026 - 1071 - 1042 - 1011 | .34.958 .75002 .64957 .44976 .34973 .24976 .14996 .04025 .01985 .005578 .00054 .00054 .00057 | - G1821 - G2850 - G3715 - G4816 - G4816 - G4876 - G4676 - G4676 - G4676 - G1562 - G1561 - G156 | 192 194 157 550 513 442 5160 502 225 120 476 188 488 488 488 1070 1124 1126 1. 126 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | .84954 .75003 .6498 .5498 .44990 .35016 .25012 .15054 .10029 .04530 .02230 .00587 .00057 .00057 .00128 .00058 .000587 .00058 .000587 .00058 .0 | - 01922 - 02951 - 03713 - 04897 - 04840 - 04840 - 04646 - 03625 - 03263 - 02282 - 03144 - 00370 - 0037 | - 071 - 088 - 481 - 442 - 443 - 345 - 224 - 066 - 017 - 085 - 176 - 176 - 176 - 189 - 149 - 105 - 105 | 84735, 747963 647950 54795 44797 34797 10017 006521 003997 017935 001653 001673 001673 001673 001673 001673 | - 0.1825 - 0.2854 - 0.3714 - 0.4596 - 0.4814 - 0.4645 - 0.4675 - 0.4625 - 0.46 | - 077 - 008 - 198 - 551 - 499 - 598 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 127 - 1026 - 1071 - 1074 - 1014 | 34 958 75 002 64 957 54 967 54 967 34 976 100 39 06 536 04 02 5 00 35 78 00 03 578 00 03 78 00 03 78 0 | - G1821 - G2850 - G3715 - G4598 - O4816 - O4879 - G4675 - G4675 - G4675 - G3627 - G3527 - G352 | 192 194 187 550 513 442 500 502 228 134 120 476 531 188 378 1070 1126 1. 128 1. 128 - | | |
| 14 13 12 11 10 9 9 7 6 5 4 4 4 4 4 4 4 4 4 4 5 8 8 8 8 8 8 8 8 | 8495. 770013. 64983. 54915. 15916. 15916. 15916. 16910. | - 01922 - 02951 - 03713 - 04897 - 04840 - 04840 - 04646 - 03625 - 03263 - 02282 - 03314 - 00370 - 00727 - 01361 - 0272 - 01361 - 0276 - 0276 | - 071 - 088 - 481 - 442 - 443 - 345 - 224 - 066 - 017 - 085 - 176 - 176 - 176 - 186 - 1024 - 1015 - 981 - 961 - 961 | 84735, 747963 647980 54795 44799 34797 10017 00521 100397 017935 017935 017935 017935 017937 017937 017937 017937 017937 017937 017937 017937 | - 0.1825 - 0.2854 - 0.3714 - 0.4946 - 0.4814 - 0.4645 - 0.4678 - 0.46278 - 0.2603 - 0.2268 - 0.3624 - 0.3198 - 0.2268 - 0.3198 - 0.3 | -077 -088 -198 -551 -499 -598 -331 -227 -106 -011 -122 -580 -98 -265 -128 -107 -106 -107 -106 -107 -107 -104 -107 -107 -107 -107 -107 -107 -107 -107 | 34 998 75 002 64 997 54 996 54 996 100 39 00 536 04 023 01 985 00 357 00 0357 00 0357 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4675 - G4675 - G4675 - G2813 - G281 | 192 194 187 550 513 442 500 502 223 124 124 125 188 488 488 1070 1126 1. 128 1. 128 | | |
| 14 13 12 11 10 9 8 7 6 5 4 4 3 2 1 45 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | .845/ | - 01922 - 02951 - 03713 - 04897 - 04880 - 04880 - 04646 - 04625 - 03213 - 02282 - 03213 - 02282 - 01361 - 01572 - 01561 - 01572 - 015621 - 03572 - 03572 - 04515 - 04515 - 04515 - 04515 - 04681 | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 066 - 017 - 083 - 176 - 671 - 732 - 159 - 481 - 1015 - 981 - 981 - 945 - 945 | 84754 74965 54995 54995 54997 15015 10017 06521 03997 01985 001985 001985 001985 001985 00477 07488 09991 13995 1499991 13995 1499991 13995 1499991 13995 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 14999991 1499991 1499991 1499991 1499991 1499991 1499991 14999991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 1499991 14999991 1499991 1499991 1499991 1499991 1499991 1499991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 14999991 1499991 14999991 149991 14999 | - 01825 - 02854 - 03714 - 04596 - 04816 - 04645 - 04675 - 04675 - 03624 - 03624 - 03624 - 03624 - 03624 - 03624 - 03624 - 03624 - 03626 - 0 | - 077 - 008 - 198 - 551 - 499 - 338 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 827 - 1026 - 1071 - 1014 - 1014 - 859 - 551 | .34 998 .75 002 .64 997 .54 997 .54 997 .14 996 .10 039 .06 536 .04 025 .01 985 .05 78 .00 55 .00 55 .00 57 .00 57 | - G1821 - G285G - G3715 - G4816 - G4879 - G4645 - G4076 - G4076 - G2813 - G2267 - G1362 - G1362 - G1362 - G1362 - G1362 - G1362 - G2277 - G2563 - G297G - G2563 - G297G - G2563 - G297G - G2563 - G297G - G2563 - G297G - G2563 - G297G - G2563 - G256 | 192 194 157 550 513 442 506 502 225 154 120 188 376 188 376 1070 1, 124 1, 126 1, 126 | | |
| 14 13 12 11 10 9 9 7 6 5 4 4 4 4 4 4 4 4 4 4 5 8 8 8 8 8 8 8 8 | .849575013649854913449035016350163501610029665004030020300 | - 01922 - 02951 - 03713 - 04814 - 04840 - 04046 - 04061 - 03525 - 03218 - 02282 - 03314 - 00379 - 00727 - 01361 - 0282 - 0352 - 0452 - 0452 | - 0.71 - 0.86 - 481 - 442 - 443 - 345 - 324 - 0.66 - 0.17 - 0.83 - 176 - 1.05 - 1. | 84736 747963 647950 54995 54997 15015 10017 06521 03997 011935 00152 00193 00193 00193 00193 01207 0198 01991 04977 07498 074991 13793 17799 22010 257996 297996 297996 | - 01825 - 02854 - 03714 - 04596 - 04814 - 04645 - 04678 - 03624 - 03198 - 02268 - 02268 - 01505 - 00749 - 01851 - 02468 - 0258 - | -077 -088 -198 -551 -499 -598 -331 -227 -106 -011 -011 -122 -580 -698 -205 -128 -107 -1026 -107 -1042 -1014 -1014 -1014 -1059 -551 | .34 998 .75 002 .64 997 .54 997 .54 997 .14 996 .10 039 .06 536 .00 558 .00 558 .00 558 .00 558 .00 578 .00 578 .00 578 .00 559 .00 578 .00 57 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4675 - G4675 - G4675 - G2813 - G281 | 192 194 187 550 513 442 550 513 442 500 502 223 154 124 188 548 1070 1124 1126 1085 726 641 755 641 755 477 | | |
| 14 112 110 9 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | . 8495. . 75003. . 6498. . 54918. . 54919. . 35012. . 15054. . 15029. . 64550. . 2030. . 203 | - 01922 - 02951 - 03713 - 04890 - 04840 - 04840 - 04646 - 03625 - 03263 - 02282 - 01314 - 00379 - 00727 - 01364 - 00379 - 0 | - 071 - 086 - 481 - 442 - 443 - 345 - 224 - 006 - 017 - 083 - 083 - 083 - 772 - 140 - 140 - 140 - 1024 - 1 051 - 981 - 981 - 945 - 945 - 945 - 485 - 604 - 485 | . 84.754 . 74.7963 . 64.7959 . 54.7959 . 34.7979 . 34.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 . 37.7979 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4880 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2803 - 0.2803 - 0.2803 - 0.2803 - 0.2803 - 0.2803 - 0.3526 - 0.35 | -077 -088 -198 -551 -499 -598 -331 -227 -106 -011 -011 -122 -580 -98 -205 -128 -501 -107 -1026 -1071 -1014 -1014 -559 -551 -1042 -559 -551 -1042 -1014 -1042 | .34 998 .75 002 .64 997 .54 967 .54 967 .54 975 .04 975 .04 975 .05 578 .00 975 .00 97 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4675 - G4675 - G2573 - G2513 - G251 | 9923943675605134425605065022282282282282282282411883783781070 -1.124 -1.126 -1.085726553411553726641553 | | |
| 14 113 112 110 9 8 7 6 5 4 3 2 1 5 4 4 5 4 6 4 7 4 8 7 8 8 3 7 8 | .849% .75013 .649% .549% .549% .45010 .35012 .15056 .10029 .6650 .04230 .02030 .02030 .02030 .00082 .00084 .00084 .0208 .02084 .02084 .02084 .02084 .02084 .02084 .02084 .02084 .02084 | - 01922 - 02951 - 03713 - 04814 - 04840 - 04646 - 04021 - 03278 - 02282 - 03314 - 00379 - 00727 - 01361 - 01873 - 02986 - 0356 - 0356 | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 066 - 017 - 083 - 176 - 083 - 176 - 139 - 481 - 1051 - 1051 - 981 - 981 - 981 - 985 - 945 - 450 - 485 - 450 | 84736 747963 64795 54795 54797 15015 10017 06521 03997 011935 00163 00193 00193 00193 00193 01207 0198 02991 04972 07488 07991 13793 17799 22010 257996 27996 | - 01825 - 02854 - 03714 - 04896 - 04896 - 04867 - 04678 - 03624 - 03198 - 02268 - 02268 - 01505 - 00449 - 01365 - 02468 - 02584 - 0 | - 077 - 008 - 198 - 551 - 499 - 538 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 1071 - 1026 - 1014 - 1014 - 659 - 550 - 501 - 472 - 401 - 401 | .34 998 .75 002 .64 997 .44 976 .54 997 .34 998 .06 536 .00 5578 .00 5 | - G1821 - G285G - G3715 - G4816 - G4879 - G4675 - G4076 - G4076 - G2813 - G2277 - G1562 - G156 | 192 194 195 550 513 462 500 513 462 502 225 134 106 503 188 376 1070 1124 1. 126 1. 128 726 477 451 460 1885 | | |
| 14 112 110 9 7 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | .849% .750n3 .649% .549% .4490n .350n2 .350n2 .150s6 .10029 .6650 .04230 .02030 | - 01922 - 02951 - 03713 - 04890 - 04846 - 04980 - 04646 - 04025 - 03278 - 02282 - 03314 - 06379 - 06727 - 01361 - 02282 - 03314 - 06379 - 07272 - 01361 - 0395 - 0395 - 04868 - 048 | - 071 - 088 - 481 - 442 - 443 - 345 - 224 - 086 - 017 - 083 - 176 - 683 - 176 - 107 - 186 - 107 - 981 - 943 - 943 - 945 - 450 - 450 | 84736, 747963 647950 547957 54797 15015 06521 00399 01795 001652 00195 0 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4860 - 0.4678 - 0.3624 - 0.3524 - 0.3198 - 0.2803 - 0.2803 - 0.2803 - 0.2803 - 0.2803 - 0.2803 - 0.3524 - 0.3524 - 0.3524 - 0.3528 - 0.3528 - 0.3529 - 0.3529 - 0.3529 - 0.3529 - 0.3529 - 0.3529 - 0.3529 - 0.3621 - 0.36 | - 077 - 008 - 198 - 551 - 499 - 538 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 1071 - 1026 - 1014 - 1014 - 659 - 550 - 501 - 472 - 401 - 401 | .34 998 .75 002 .64 997 .54 967 .54 967 .54 975 .04 975 .04 975 .05 578 .00 975 .00 97 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4675 - G4675 - G2573 - G2513 - G251 | 192 194 195 550 513 462 506 502 225 126 106 502 225 126 1070 1124 1126 1. 128 1070 1. 124 1. 126 1. | | |
| 14 112 110 9 9 7 6 5 4 4 4 5 4 6 4 6 4 7 4 8 4 8 4 9 5 9 5 9 5 9 7 8 7 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 | .849575003649854918549193501215054150541505400587005870058700587007480748074807480748159 | - 01922 - 02951 - 03713 - 04810 - 04810 - 04810 - 04646 - 04621 - 03625 - 02282 - 02282 - 02282 - 01314 - 01873 - 02282 - 01873 - 02282 - 01873 - 02282 - 01873 - 02581 - 02682 - 01873 - 02581 - 02682 - 03522 - 03522 - 03522 - 03522 - 04660 - 04800 - 04400 - 0 | - 071 - 086 - 481 - 442 - 443 - 345 - 224 - 012 - 083 - 083 - 083 - 176 - 671 - 772 - 140 - 119 - 481 - 1024 - 1 025 - 1 035 - 1 045 - | 84735, 747963 64980 54995 34997 10019 06521 06521 06521 06521 06521 06521 06521 06521 06521 07995 0719 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4846 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2803 - 0.1505 - 0.1450 - 0.1450 - 0.1851 - 0.2684 - 0.2967 - 0.3624 - 0.3624 - 0.3626 - 0.36 | -077 -078 -198 -198 -551 -499 -598 -331 -227 -106 -011 -011 -011 -011 -122 -580 -68 -265 -128 -301 -107 -107 -107 -107 -107 -107 -107 -1 | 34 998 75 002 64 997 64 997 64 997 64 997 64 997 64 997 64 998 65 970 64 998 65 970 65 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4665 - G4676 - G2813 - G281 | 192 194 195 550 513 442 550 513 442 156 156 156 156 156 158 158 158 158 107 1124 1126 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 726 1085 108 | | |
| 14 113 12 110 9 9 7 6 5 4 3 2 1 5 4 4 5 4 4 5 4 4 7 3 8 8 7 3 7 3 8 8 7 3 8 7 4 7 5 7 5 7 7 8 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 | - 8495 75003 6498 5498 5498 5498 5498 55012 15029 6550 62030 | - 01922 - 02951 - 03713 - 04890 - 04840 - 04646 - 04680 - 05625 - 03263 - 02282 - 02381 - 02282 - 01314 - 00379 - 00727 - 01361 - 0282 - 03314 - 0437 - 04286 - 04286 - 04286 - 04286 - 04286 - 04286 - 04286 - 04286 - 04286 - 04486 - 04466 - 04465 - 044 | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 066 - 017 - 085 - 085 - 176 - 187 - 186 - 1.024 - 1.051 - 981 - 961 - 965 - 450 - 485 - 457 - 417 - 417 - 417 - 526 | 84736 747963 64795 44799 24797 15015 10017 06521 00521 00521 00195 | - 0.1825 - 0.2854 - 0.3714 - 0.4596 - 0.4816 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2268 - 0.2268 - 0.1365 - 0.0449 - 0.1365 - 0.13 | - 077 - 008 - 198 - 551 - 499 - 598 - 331 - 227 - 106 - 011 - 122 - 880 - 265 - 128 - 501 - 122 - 107 - 1026 - 1071 - 1014 - 344 - 659 - 551 - 5 | .34 998 .75 002 .64 997 .44 976 .44 976 .44 976 .10 039 .04 035 .04 035 .05 536 .05 536 .05 536 .05 536 .05 536 .05 536 .05 | - G1821 - G2850 - G3715 - G4598 - G4645 - G4676 - G4676 - G4676 - G3627 - G3207 - G3207 - G3207 - G3207 - G3507 - G350 | 192 194 195 550 513 442 550 513 106 502 225 125 126 1070 1126 1. 126 | | |
| 14 12 11 10 9 9 7 6 5 4 3 2 15 445 445 447 440 588 337 336 537 336 337 24 27 28 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | - 8495 75003 6498 5491 5491 150 | - 01922 - 02951 - 03713 - 04890 - 04840 - 04646 - 04646 - 05625 - 03263 - 02282 - 03314 - 06379 - 06727 - 01361 - 02282 - 03314 - 06379 - 06727 - 01361 - 02968 - 03462 - 04666 - 04869 - 04469 - 04669 - 04669 - 04669 - 04669 - 0 | - 071 - 088 - 481 - 442 - 443 - 345 - 224 - 066 - 017 - 083 - 176 - 187 - 187 - 187 - 198 - 105 - 105 | 84736 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 74797 74996 | - 0.1825 - 0.2854 - 0.3714 - 0.4596 - 0.4816 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2268 - 0.2268 - 0.0449 - 0.1365 - 0.0474 - 0.1365 - 0.049 - 0.1365 - 0.049 - 0.0491 - 0.0491 | - 077 - 008 - 198 - 198 - 551 - 499 - 538 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 255 - 128 - 501 - 827 - 1,024 - 1,011 - 1,012 - 1,011 - 1,014 - 649 - 551 - 472 - 434 - 401 - 379 - 335 - 320 - 291 - 255 | .34 998 | - G1821 - G2850 - G3715 - G4598 - G4645 - G4676 - G467 | 192 194 185 550 513 442 550 513 142 106 102 124 126 188 | | |
| 14 13 12 11 10 9 9 7 6 5 4 4 4 3 2 1 1 4 4 4 5 5 4 4 4 7 7 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 | - 8495 - 75003 - 6498 - 5493 - 5493 - 5493 - 5493 - 5493 - 5491 - 2501 - 2501 - 2501 - 2501 - 2501 - 2655 - 2764 - 2764 - 2796 - 279 | - 01922 - 02951 - 03713 - 04810 - 04810 - 04810 - 04646 - 04621 - 03625 - 02282 - 02282 - 02282 - 01314 - 01873 - 02282 - 01873 - 02282 - 01873 - 02282 - 01873 - 02282 - 01873 - 02581 - 02966 - 03522 - 03522 - 04660 - 04805 - 0 | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 012 - 083 - 083 - 083 - 083 - 176 - 671 - 772 - 140 | 84736 747963 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4645 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2803 - 0.1505 - 0.1450 - 0.1505 - 0.15 | -077 -088 -198 -198 -351 -499 -398 -311 -227 -106 -011 -122 -580 -688 -688 -501 -128 -107 -1024 -107 -1044 -869 -551 -472 -401 -472 -401 -472 -401 -379 -352 -291 -255 | .34 998 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4645 - G4676 - G2813 - G2813 - G2813 - G3527 - G1313 - G0351 - G1889 - G2877 - G1889 - G2870 - G287 | 192 194 195 550 513 442 550 513 442 156 156 156 156 157 158 158 158 188 | | |
| 14 12 11 10 9 9 7 6 5 4 3 2 15 445 445 447 440 588 337 336 537 336 337 24 27 28 27 28 28 28 28 28 28 28 28 28 28 28 28 28 | - 8495 75003 6498 5491 5491 350 | - 01922 - 02951 - 03713 - 04890 - 04880 - 04646 - 04686 - 05625 - 03287 - 02788 - 02787 - 02787 - 01361 - 007727 - 01361 - 00727 - 01361 - 02782 - 03581 - 02968 - 03581 - 02968 - 04286 - | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 066 - 017 - 085 - 176 - 085 - 176 - 186 - 107 - 186 - 107 - 186 - 107 - 981 - 961 - 981 - 965 - 485 - 450 - 485 - 457 - 417 - 417 - 526 - 338 - 779 - 267 | 84736 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747976 747976 747976 747976 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4645 - 0.4678 - 0.4645 - 0.3624 - 0.3198 - 0.2803 - 0.2268 - 0.1505 - 0.0449 - 0.1365 - 0.0362 - 0.0468 - 0.0362 - 0.0468 - 0.04 | - 077 - 008 - 198 - 198 - 551 - 499 - 538 - 531 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 827 - 1,026 - 1,011 - 1,012 - 1,011 - 1,014 - 764 - 659 - 551 - 472 - 434 - 401 - 779 - 535 - 220 - 291 - 255 - 238 | .34 998 | - G1821 - G2850 - G3715 - G4598 - G4675 - G4675 - G4675 - G4675 - G4776 - G | 192 194 185 550 513 442 550 513 154 100 100 102 225 154 1070 1124 1085 1070 1124 1085 1086 1070 1124 1085 1 | | |
| 14 12 11 10 9 9 7 6 5 4 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | - 8495 75003 64983 54943 5496 35012 15029 60550 60550 6056 6056 60650 | - 01922 - 02951 - 03713 - 04890 - 04880 - 04646 - 04686 - 03625 - 03213 - 02788 - 02282 - 01314 - 00.379 - 00727 - 01361 - 02788 - 02282 - 03314 - 00.379 - 00727 - 01361 - 02966 - 03522 - 03522 - 04286 - | - 071 - 088 - 481 - 442 - 443 - 343 - 324 - 066 - 017 - 083 - 176 - 189 - 481 - 1024 - 1031 - 1015 - 981 - 981 - 981 - 945 - 485 - 945 - 487 - 4 | 84736 747963 747970 747980 749770 749770 749780 749790 74970 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4645 - 0.4678 - 0.4645 - 0.2803 - 0.2803 - 0.2268 - 0.1365 - 0.0449 - 0.1365 - 0.0749 - 0.1365 - 0.0468 - 0.2584 - 0.2967 - 0.3529 - 0.3529 - 0.4681 - 0.4681 - 0.4689 - 0.4867 - 0.4864 - 0.48 | - 077 - 008 - 198 - 198 - 551 - 499 - 538 - 531 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 827 - 1,026 - 1,011 - 1,012 - 1,011 - 1,014 - 764 - 401 - 769 - 551 - 472 - 401 - 779 - 555 - 220 - 291 - 255 - 226 - 214 - 206 | .34 998 .75 002 .64 997 .54 996 .54 997 .54 996 .10 039 .00 536 .04 025 .01 985 .00 1985 .00 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4675 - G467 | 192 194 195 550 513 442 550 513 442 156 156 156 156 157 158 158 158 188 | | |
| 14 11 12 11 10 9 8 7 6 5 4 3 2 1 1 44 5 44 6 44 6 3 7 8 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 | - 8495 - 75003 - 6498 - 5493 - 5493 - 5493 - 5493 - 5493 - 5491 - 2501 - 2501 - 2501 - 2501 - 2655 - 2703 - 270 | - 01922 - 02951 - 03713 - 04397 - 04810 - 04810 - 04646 - 04646 - 03625 - 03213 - 02782 - 01314 - 01873 - 01873 - 01873 - 02881 - 01873 - 02881 - 01873 - 02881 - 02881 - 04875 - 04875 - 04866 - 0486 | - 071 - 086 - 481 - 442 - 443 - 345 - 224 - 606 - 012 - 083 - 083 - 083 - 083 - 176 - 671 - 772 - 140 - 139 - 481 - 1024 - 1051 - 981 - 943 - 850 - 457 - 485 - 457 - 458 - 363 - 477 - 778 - 778 - 779 - 77 | . 84.736 . 74.7963 . 74.7963 . 54.795 . 34.797 . 10017 . 00.521 . 00.521 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4645 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2268 - 0.1198 - 0.2268 - 0.1198 - 0.2268 - 0.1198 - 0.2268 - 0.1198 - 0.2268 - 0.1505 - 0.0149 - 0.1505 - 0.0149 - 0.1505 - 0.0149 - 0.1851 - 0.2268 - 0.2584 - 0.2784 - 0.27 | -077 -077 -088 -198 -198 -331 -499 -398 -311 -011 -011 -122 -580 -088 -088 -265 -128 -128 -1024 | .34 998 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4645 - G4676 - G2813 - G2813 - G2813 - G2813 - G6151 - G615 | 192 194 195 550 513 442 550 513 442 156 156 156 156 156 156 156 156 156 156 156 166 | | |
| 14 12 11 10 9 9 7 6 5 4 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | - 8495 75003 64983 54943 54943 44970 35012 15029 60550 60557 60057 60 | - 01922 - 02951 - 03713 - 04890 - 04880 - 04646 - 03625 - 03263 - 03263 - 02288 - 02282 - 03314 - 00370 - 0 | - 071 - 086 - 481 - 442 - 443 - 345 - 324 - 066 - 017 - 085 - 176 - 017 - 187 | 84736 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747963 747970 747963 747970 747963 747970 747963 747970 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4860 - 0.4678 - 0.4647 - 0.3624 - 0.3198 - 0.2503 - 0.2508 - 0.0149 - 0.1365 - 0.0149 - 0.0159 - 0.01 | - 277 - 008 - 198 - 198 - 551 - 499 - 598 - 331 - 227 - 106 - 011 - 122 - 580 - 698 - 265 - 128 - 501 - 107 - 1026 - 1011 - 1014 - 1014 - 1042 - 1011 - 1042 - 1042 - 1043 - 205 - 227 - 241 - 377 - 325 - 220 - 291 - 255 - 228 - 214 - 206 - 192 - 173 | .34 998 | - G1821 - G2850 - G3715 - G4598 - G4879 - G4675 - G4675 - G4675 - G4675 - G4675 - G4675 - G4675 - G4675 - G4675 - G4813 - GG361 - GG361 - G6361 - G | 192 194 195 550 513 442 550 513 442 550 506 502 225 154 120 476 653 188 378 188 378 1124 1085 1124 1085 1124 1085 1124 1085 124 1085 124 1085 124 1085 124 1085 124 1085 124 1085 124 1085 124 1085 124 1085 1086 1 | | |
| 143 121 110 9 9 7 6 5 4 3 2 1 1 1 1 0 0 9 9 7 6 5 4 4 5 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | - 8495 - 75003 - 6498 - 5493 - 5493 - 5493 - 5493 - 5493 - 5491 - 2501 - 2501 - 2501 - 2501 - 2655 - 2703 - 270 | - 01922 - 02951 - 03713 - 04397 - 04810 - 04810 - 04646 - 04646 - 03625 - 03213 - 02782 - 01314 - 01873 - 01873 - 01873 - 02881 - 01873 - 02881 - 01873 - 02881 - 02881 - 04875 - 04875 - 04866 - 0486 | - 071 - 086 - 481 - 442 - 443 - 345 - 224 - 606 - 012 - 083 - 083 - 083 - 083 - 176 - 671 - 772 - 140 - 139 - 481 - 1024 - 1051 - 981 - 943 - 850 - 457 - 485 - 457 - 458 - 363 - 477 - 778 - 778 - 779 - 77 | . 84.736 . 74.7963 . 74.7963 . 54.795 . 34.797 . 10017 . 00.521 . 00.521 | - 0.1825 - 0.2854 - 0.3714 - 0.4396 - 0.4814 - 0.4645 - 0.4645 - 0.4678 - 0.3624 - 0.3198 - 0.2268 - 0.1198 - 0.2268 - 0.1198 - 0.2268 - 0.1198 - 0.2268 - 0.1198 - 0.2268 - 0.1505 - 0.0149 - 0.1505 - 0.0149 - 0.1505 - 0.0149 - 0.1851 - 0.2268 - 0.2584 - 0.2784 - 0.27 | -077 -077 -088 -198 -198 -331 -499 -398 -311 -011 -011 -122 -580 -088 -088 -265 -128 -128 -1024 | .34 998 | - G1821 - G2850 - G3715 - G4598 - G4816 - G4879 - G4645 - G4676 - G2813 - G2813 - G2813 - G2813 - G6151 - G615 | 192 194 195 550 513 442 550 513 442 156 156 156 156 156 156 156 156 156 156 156 166 | | |

MO = .929R ALPHA = 6.07 REC = 11.71*10**6

| | SECTION | 1 | | SECTION | | | SECTION | | | SECTION | | |
|-----|------------------|--------------------|------------------|------------------|----------------|------------------|-----------|----------------|------------|---------|---------|------------|
| NP | X/L | 2/1 | CP | X/L | 1/1 | CP | X/L | 1/1 | CP | x/L | 1/1 | CP |
| 12 | .95030 .81597 | 00726 | 150 | .94937 | 00735 | 148 | .94999 | 00737 | 043 | . 82223 | 00731 | 117 |
| 10 | .66593 | 03587 | 160 | .66699 | 03579 | 226 | . 67468 | 03553 | 30 4 | .67216 | 03537 | 597 |
| 9 | .56588 | 04301 | 175 153 | .56705 | 04769 | 227 | . 57033 | 04272 | 285 | .57230 | 04755 | 529 |
| 7 | . 36580 | 04889 | 066 | . 35 735 | 04889 | 109 | . 37009 | 04890 | 165 | . 37255 | 04891 | 210 |
| 5 | .16594 | 04702 | .006 | .26735 | 04706 | 022 | . 27010 | 04716 | 048 | . 27230 | 04238 | .032 |
| 4 | .04993 | 02971 | .225 | .04909 | 02958 | .215 | .05016 | 02975 | .236 | .05017 | 02974 | . 330 |
| 2 | .02002 | 02268 | .756 | .01922 | 02242 | .320 | .02010 | 02275 | . 762 | .00611 | 01355 | .747 |
| 54 | .00034 | 50800 | .794 | .00031 | .00277 | .769 | .00042 | .00317 | .731 | .00030 | .00000 | .736 |
| 33 | .00366 | .01592 | 196 | .00789 | .01531 | 269 | .00914 | .01640 | 310 | .00893 | .01619 | 542 |
| 31 | .02037 | .02285 | 683 | .01906 | .02232 | -1.004 | .03508 | .02275 | -1.053 | .03550 | .02276 | 868 |
| 30 | .06336 | .03130 | 973 | .05911 | .03113 | -1.006 | . 06022 | .03128 | -1.335 | . 06011 | .03127 | -1.349 |
| 29 | .15037 | .03617 | 855 | .09913 | .03613 | 950 | .10029 | .03026 | 983 945 | .15019 | .04078 | 995 968 |
| 27 | .20044 | .04413 | 565 | .19939 | .04405 | 889 | . 20029 | .04411 | 932 | .25021 | .04410 | 958 954 |
| 5.0 | .30050 | .04800 | 623 | .25080 | .04649 | 870 | . 30008 | .04647 | 925 | .30021 | .04799 | 945 |
| 24 | . 55050 | .04879 | 676 | .34927 | .04878 | 595 | . 35024 | .04879 | 932 | .35015 | .04885 | 656 |
| 23 | 45030 | .04886 | 530 543 | .44397 | .04815 | 735 | .45010 | .04813 | 951 | .45039 | . 04413 | 465 |
| 21 | .50039 | .04594 | 565 | .49927 | .04652 | /83 | .50024 | .04649 | 916 | .55033 | .04548 | 452 |
| 19 | .55025 | .04075 | 538 | .59751 | .04083 | 683 | .60071 | .04073 | 520 | .60018 | .04078 | 411 |
| 18 | .65032 | .03711 | 607 656 | .64917 | .03719 | 550 | .65026 | .03711 | 497 | .65015 | .03711 | 535 571 |
| 16 | . 78326 | . 22561 | 694 | .77912 | .02572 | 146 | .78008 | . 32563 | 396 | .78012 | .02562 | 549 |
| 15 | .85021 | .01914 | 174 | .84903 | .01826 | 069 | .85001 | .01815 | 316 | .85010 | .01815 | 319 |
| 13 | .98519 | .00265 | .096 | .98387 | . 30283 | .041 | .98611 | .00251 | 118 | .98498 | .00267 | 262 |
| NP | SECTION X/L | · · | CP | SECTION | 6 | CP | SECTION | 7 | C.P. | | | |
| 15 | .949?7 | 00731 | | | | | | - | | | | |
| 14 | . 84954 | 01822 | 134 | .94955 | 00734 01823 | 132 | .94946 | 00735 01821 | 142 | | | |
| 13 | .75003 | ~.02851 ~.03713 | 274 | .74963 | 02854 | 089 | .75002 | 02850 03715 | 104 | | | |
| 11 | .54993 | 04.97 | 390 | .54955 | 04396 | 511 | .54967 | 34 398 | 524 | | | |
| 10 | .35016 | 04814 04880 | 390 | .44993 | 04814 | 446 | . 44970 | 04816 | 480 | | | |
| 9 | .25012 | 04046 | 160 | .24997 | 04645 | 276 | . 24976 | 04645 | 318 | | | |
| 6 | -10029 | 01625 | .083 | .10019 | 03624 | 155 | .14996 | 04076 | 248 | | | |
| 5 | .04550 | 03203 | .178 | .06521 | 03198 | .101 | .06536 | 03200 | 134 | | | |
| 3 | .02030 | 07787 | .278 | .01985 | 02268 | .225 | .01985 | 32266 | . 385 | | | |
| 1 | .005*7 | 01314 | .725 | .00567 | 01305 | .655 | .00578 | 01313 | .561 | | | |
| 45 | .00184 | .00727 | 195 | .00190 | .00749 | 176 | .00193 | .00757 | . 185 | | | |
| 43 | .01223 | .01873 | 520 | .01209 | .01851 | ~.535 | .01265 | .01889 | 237 | | | |
| 42 | .02006 | .02581 | 866 | .01983 | .02268 | -1.042 | .02012 | .02277 | -1.080 | | | |
| 40 | .04966 | .03322 | -1.070 -1.038 | .04977 | .02967 | -1.087 | . 04995 | .02970 | -1.135 | | | |
| 38 | . 99994 | .03621 | -1.009 | .09991 | .03620 | -1.064 -1.035 | .07482 | .03327 | -1.140 | | | |
| 37 | .13996 | .03995 | 991 | .15983 | .03994 | 988 | .13976 | .03995 | 855 | | | |
| 35 | .22001 | .04515 | 997 | .22010 | .04514 | 592 | .21990 | .04514 | 554 | | | |
| 33 | . 29998 | .04881 | 624 | .25996 | .04681 | 542 | .25976 | .04682 | 444 | | | |
| 32 | . 55935 | .04892 | 488 | .34009 | .04869 | 470 | .33979 | .04868 | 413 | | | |
| 50 | .41959 | 06947 | 443 | .41988 | .04867 | 410 | .41988 | .04868 | 361 | | | |
| 58 | .45775 | .04789 | 411 | .45976 | .04790 | 565 | .45970 | .04789 | 327 | | | |
| 27 | .53959 | .04457 | 375 | .55988 .57991 | .04450 | 532 | .53975 | .04452 | 299 | | | |
| 25 | .61997 | .03938 | 357 | .61973 | .03939 | 307 | . 61976 | .03940 | 296 | | | |
| 24 | .65963 | .03637 | 341 | .65979 | .03635 | 307 | .65966 | .03636 | 295 | | | |
| 55 | .73940 | .02949 | 304 | .73973 | .02946 | 290 | . 73980 | . 32946 | 277 | | | |
| 50 | . 81917 | .02567 | 289 | .81965 | .02567 | 285 | .77942 | .02570 | 272 | | | |
| 19 | .85955 | .01709 | 276 | .85983 | .01707 | 284 | . 85943 | .01712 | 276 | | | |
| 17 | .94727 | .00755 | 241 | . 94 361 | .00742 | 272 | . 94 95 9 | .01243 | 262 | | | |
| 16 | .99506 | .01761 | 229 | .93462 | .00272 | 216 | . 98455 | .00274 | 223 | | | |

TABLE B1-31



SWEPT WING M6

Aspect ratio A = 3.8

Taper ratio $\lambda = 0.56$

Sweep angle

^₂₅⁼ 26.7°

ROWS OF PRESSURE TAPS

| | N. | y/b | upper | under |
|---|----|------|-------|-------|
| 1 | 1 | 0.20 | 23 | 11 |
| | 2 | 0.44 | 23 | 11 |
| | 3 | 0.65 | 23 | 11 |
| | 4 | 0.80 | 23 | 11 |
| | 5 | 0.90 | 31 | 14 |
| | 6 | 0.95 | 31 | 14 |
| | 7 | 0.99 | 31 | 14 |
| | | | | |

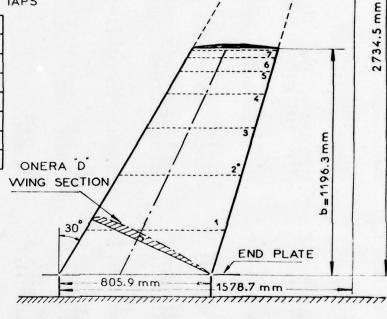
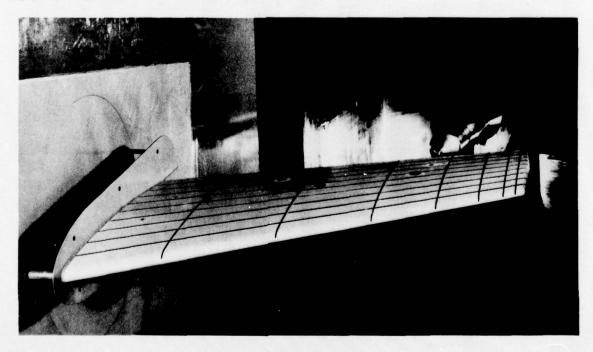
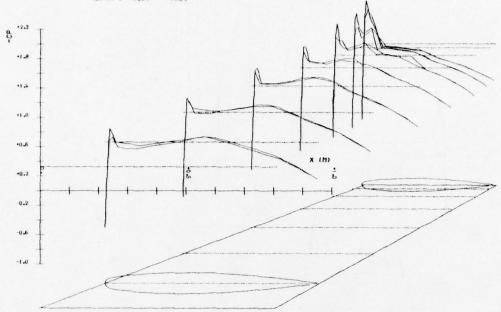
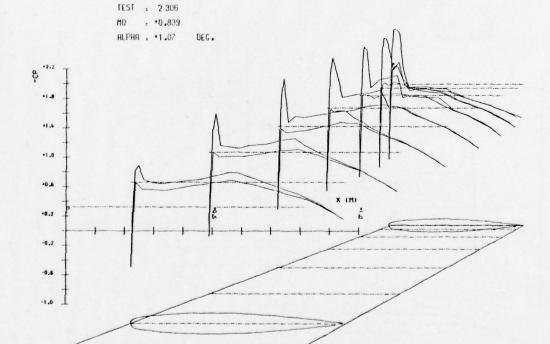


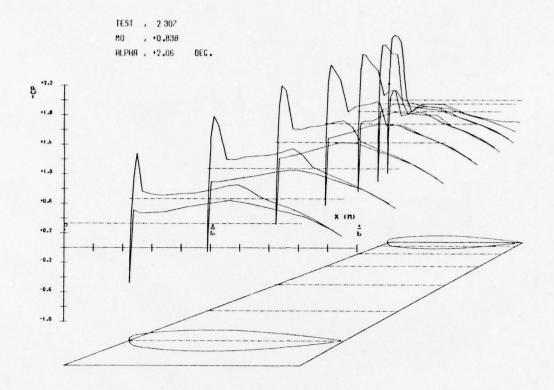
FIGURE B1-2











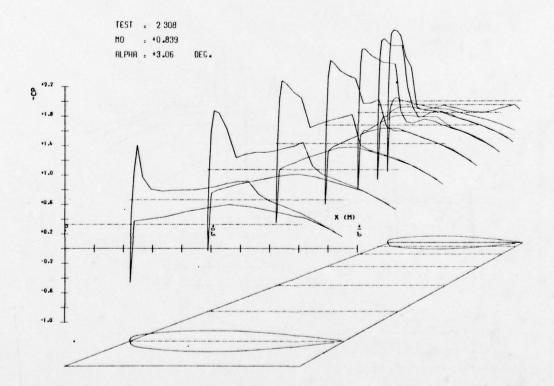
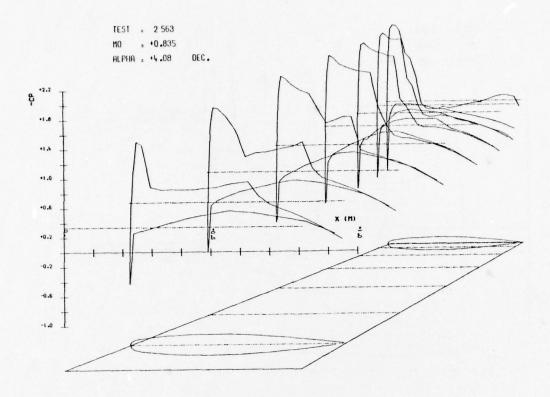
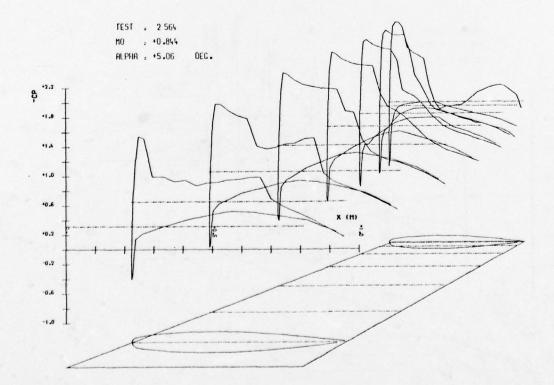
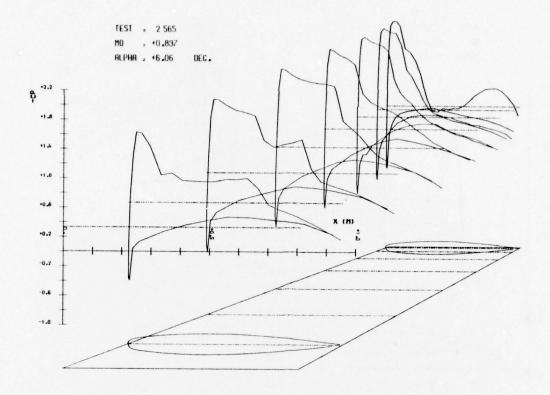
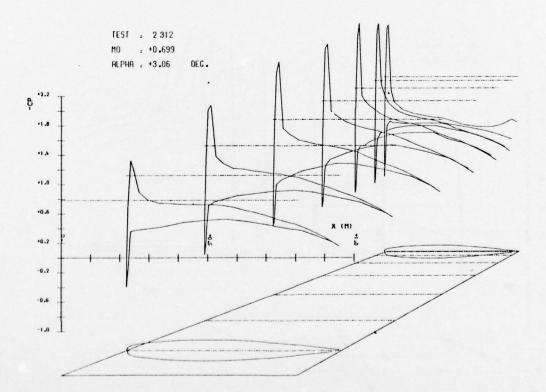


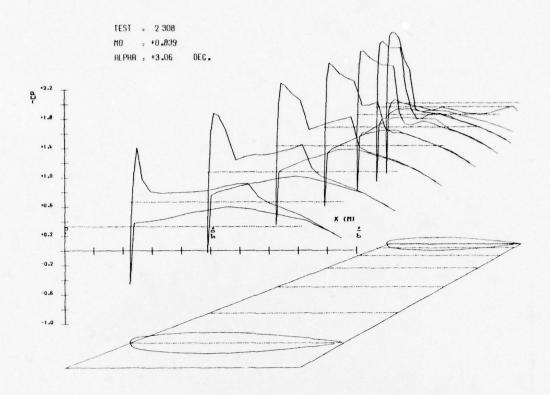
FIGURE B1- 7

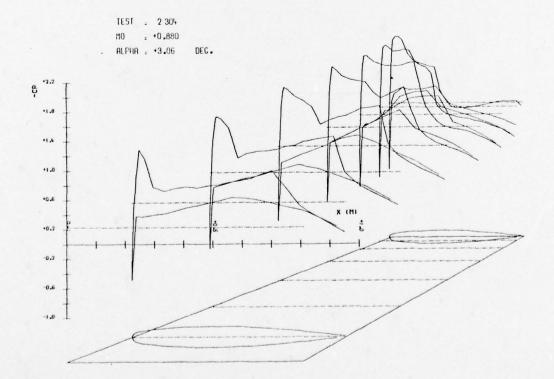


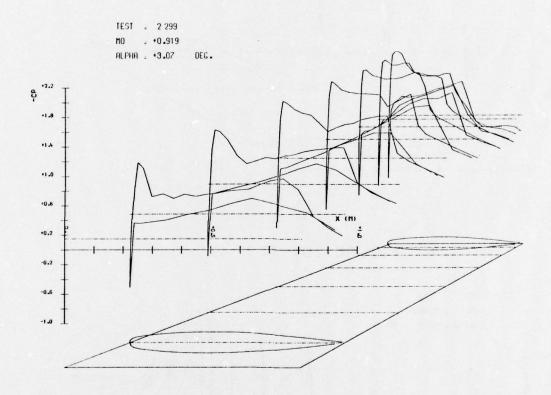












2. TRANSONIC MEASUREMENTS ON THE -ONERA AFV D- VARIABLE SWEZP WING IN THE -ONERA S2 MA- WIND TUNNEL

by

F. MANIE & J.C. RAYNAL

OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES 92320 CHATILLON - FRANCE

2.1 - INTRODUCTION -

The ONERA AFV D Variable Sweep Wing designed with the symmetrical ONERA D peaky type airfoil has been chosen as a basic tool to study three-dimensional flows and to provide an experimental data base for comparisons with calculation methods from low to transonic speeds at sweep angles from 0° to 60°.

This contribution contains selected data from those obtained in the ONERA S2MA Transonic Wind Tunnel.

Tables and graphs are presented for three values of the wing sweep angle.

2.2 - DATA SET -

1. General description

1.1 Model designation or name

ONERA VARIABLE SWEEP WING AFV D

1.2 Model type (e.g. full span wing-body, semi-span wing)

semi-span wing: see fig. B2-1

1.3 Design requirements/conditions variable sweep angle

1.4 Additional remarks the reference section of the wing is the "ONERA D" Airfoil : (\underline{e}) max = 0.105; $\underline{r}_{\underline{e}} = 0.0143$ See table $\underline{B2}-1$

2. Model geometry

2.1 Wing data

2.1.1 Wing planform rectangular 2.1.2 Aspect ratio 2.7 & A & 8 2.1.3 Leading-edge sweep 00 6 A 6 600 2.1.4 Trailing-edge sweep 00 6 A & 600 2.1.5 Taper ratio 2.1.6 Twist without twist $c = 0.2 \text{ m for } \Lambda = 0^{\circ}$ 2.1.7 Mean aerodynamic chord 0.43 & b & 0.8 m for 0° & 1 60° 2.1.8 Span or semispan 2.1.9 Number of airfoil sections used to define wing 2.1.10 Spanwise location of reference ETA = 0 at $\Lambda = 0^{\circ}$ section and section coordinates (note if ordinates are design profile D ordinates : see table B2-1 (design values) or actual measured values) 2.1.11 Lofting procedure between cylindrical generation

reference sections
2.1.12 Form of wing-body fillet, strakes

2.1.13 Form of wing tip

2.2 Body data (detail description of body geometry)

2.3 Fabrication tolerances/waviness

no body

0.08/0.1 mm

no body, no strake, no fillets

truncation normal to the leading edge

2.4 Additional remarks

inspection has shown some slight differences between the design and the real model : see table B2-41

3. Wind tunnel

3.1 Designation

3.2 Type of tunnel

3.2.1 Continuous or blowdown. Indicate minimum run time if applicable

3.2.2 Stagnation pressure

3.2.3 Stagnation temperature

3.3 Test section

3.3.1 Shape of test section

3.3.2 Size of test section (width, height, length)

3.3.3 Type of test section walls;
closed, open, slotted, perforated
Open area ratio (give range if
variable)
Slot/hole geometry (e.g.,
30-degree slanted holes)
Treatment of side wall
boundary layer

Full span models
Half-model testing

3.4 Flow field (empty test section)

3.4.1 Reference static pressure

3.4.2 Flow angularity

3.4.3 Mach number distribution

3.4.4 Pressure gradient

3.4.5 Turbulence/noise level

3.4.6 Side wall boundary layer

3.5 Freestream Mach number (or velocity)

3.5.1 Range

3.5.2 Pressures used to determine Mach number (e.g., settling chamber total pressure and plenum chamber pressure)

3.5.3 Accuracy of Mach number determination (△M)

3.5.4 Maximum Mach number variation in x, y, z-direction (empty tunnel: specify at what Mach number)

Maximum variation of flow direction

Maximum Mach number variation during a run

3.6 Reynolds number range

.6.1 Unit Reynolds number range. (give range at representative Mach numbers; 1/m) S2 MA (ONERA - Modane Center)

continuous

from 0.3 to a limit stagnation pressure depending slightly on the Mach number ; P $_{\rm O}$ max $_{\rm \leqslant}$ 2.5 bar from 287 to 320 K

square

height:1.770 m width: 1.750 m perforated length: 5.4 m

vertical solid walls horizontal perforated walls maximum geometric porosity: 6 % - Possibility of changing the porosity with sliding plates sixty degree inclined holes (diameter: 18 mm)

no treatment b.l. diverter

see 3.11

on the vertical wall 2.685m upstream of the balance axis wiknown

 $\Delta M/\text{meter in } \times \text{-direction} : \frac{1}{2} 3 \times 10^{-3}/\text{m.for } 0.7 < M < 0.92$

according to 3.4.3

velocity turbulence ~ 0.2 % - ref. 1

displacement thickness $\delta_{\rm A} = 12$ to 18 mm boundary layer thickness $\delta \sim 90$ to 170 mm

from $M_0 = 0.1$ to $M_0 = 1.35$

settling chamber stagnation $% \left(1\right) =\left(1\right) +\left(1\right)$

 $\Delta M = \frac{+}{2} 0.001$

see 3.4.3

upwash ~ 0.30 degree (dependent on model size)

function of the model size (see 6.3.9)

 M_{O} : 0.25; 0.50; 0.72; 1.; 1.35 $(RE/m)_{max} \cdot 10^{-6}$: 14. 21. 33. 27. 27.

| | | B2-3 |
|--------|--|---|
| | (e.c. by premarkation) | atagnathon pressure $P_0 = 0.3$ to 2.5 bar for $M_0 < 0.7$ 0.3 to 1.75tar for $M_0 > 1$. 0.3 to 2.1 bar for $M_0 = 0.8$ 0.3 to 1.9 bar for $M_0 = 0.9$ |
| 1.7 | Temperature range and dewpoint Can temperature be controlled? | stagnation temperature $T_0 = 292 \text{ K} \stackrel{+}{=} 5$ to 315 K $\stackrel{+}{=} 5$; cannot be controlled |
| 3.8 | Nodel attitudes | humidity < 0.2g H ₂ 0/Kg air |
| | 3.8.1 Angle of attack, yaw, roll | angle of attack: α -motorization up to 35° eweep angle: $\Lambda = 0/30/40/50/60^{\circ}$ |
| | 3.8.0 Accuracy in determining angles | $\Delta \alpha = 0.03$ degree |
| 7.9 | Organization operating the tunnel and location of tunnel | ONERA - Contro de Modane-Avrieux |
| 3.10 | Who is to be contacted for additional information | Direction GME - ONERA - Châtillon (FRANCE) |
| 3.11 | Literature concerning this theiliby | ver. 2,3 |
| 3.12 | Additional remarks | |
| . Test | | |
| 4.1 | Type of tests | steady measurements of : - aerodynamic forces - pressure distributions at various span sections (L to $L.E.$) for : $\Lambda = 0/30/40/50/60^{\circ}$ |
| 4.2 | Wing span on semispan to tunnel width | 0.46 at $\Lambda = 0^{\circ}$ |
| 4.3 | Test conditions | a constant |
| | 4.3.1 Angle of attack | \propto 4 30°; limited by the structure of the wing |
| | 4.3.2 Mach number | $0.275 \le M_0 \le 1.300$ |
| | 4.3.3 Dynamic pressure | 5000 ≤ 9° € 35000 N/m ² |
| | 4.3.4 Reynolds number | RE = $\frac{V_o \cdot c}{\nu}$ = 2.5×10 ⁶ (c = chord normal to L.E) |
| | 4.3.5 Stagnation temperature | ~ 300 K |
| 4.4 | Transition | |
| | 4.4.1 Free or fixed | free |
| | 4.4.2 Position of free transition | variable |
| | 4.4.3 Position of fixed transition, width of strips, size and type of roughness elements | not relevant |
| | 4.4.4 Were checke made to determine if transition occurred at trip locations ? | not relevant |
| 4.5 | Bending or torsion under load | |
| | 4.5.1 Describe any aeroelastic measurements made during tests | bending and torsion measured by strain gauges on the wing root (for safety control only) |

not relevant

4.5.2 Describe results of any bench calibrations

4.

4.6 Were different sized models used in windtunnel investigation ? If so, indicate sizes 4.7 Areas and lengths used to form varying with sweep (see table B2-41) coefficients 4.8 References on tests ref. 4 4.9 Related reports none 5. Instrumentation 5.1 Surface pressure measurements 5.1.1 Pressure orifices in wing. Locaat $\Lambda = 0^{\circ}$: sections at ETA = 0.3/0.45/0.60/0.75/ tion and number on upper and 0.85/0.95 lower surfaces number: 28 on upper surface 13 on lower surface see fig. B2-1 and table B2-2 for the exact locations 5.1.2 Pressure orifices on fuselage. not relevant Location and number 5.1.3 Pressure orifices on components, not relevant give components and orifice location 5.1.4 Geometry of orifices Ø 0.4 mm 6 transducers CEC: + 12.5 PSID Accuracy: + 0.012 PSI 5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy 6 scanivalves (D) 7 kulites 5.2 Force measurements wall balance \$\phi\$ 120 mm (5 components : X, Z, 1, m, n) 5.2.1 Type and location of balance see fig. B2-2 axial force : 1200 - 1.2 daN 5.2.2 Forces and moments that can be measured. Maximum loads and normal force : 6500 ± 6.5 daN rolling moment: 800 ± 0.8 mdaN accuracy pitching moment: 250 ± 0.25 mdaN yawing moment: 140 ± 0.14 mdaN 6. Data 6.1 Accuracy $\Delta Cp = \frac{+}{-} 0.02 \text{ (at Mo = 0.84)}$ 6.1.1 Pressure coefficient 6.1.2 Aerodynamic coefficients € 0.005 6.1.3 Boundary layer and wake quantities not relevant 6.1.4 Repeatability not tested here but for pressure distributions generally 6.2 Wall interference corrections wall interference corrections were not made : = Wing area test section area € 0.05 6.3 Data presentation 6.3.1 Aerodynamic coefficients graphs of C_{I.} (\alpha) for A =0°/30°/50° (fig. B2-3) Cp (x/c) for 6 sections defined 5.1.1 6.3.2 Surface pressure coefficients (detail, see page B2-5 : T3 means table B2-3 F4 means figure B2-4)

Λ = 0°

| M. a | 00 | 20 | 40 | 60 |
|------|---------|---------|-------|----|
| 0.7 | T3 F4 | . T4 | T5 F5 | т6 |
| 0.78 | T7 F6 | T8 | T9 F7 | |
| 0.84 | T10 F8 | T11 F9 | T12 | |
| 0.92 | T13 F10 | T14 F11 | | |

 $\Lambda = 30^{\circ}$

| M. a | 00 | 20 | 4° | 60 |
|------|---------|---------|---------|-----|
| 0.7 | T15 F12 | | T16 F13 | T17 |
| 0.78 | T18 F14 | T19 | T20 F15 | |
| 0.84 | T21 F16 | T22 F17 | Т23 | |
| 0.88 | | T24 | T25 | |
| 0.92 | T26 F18 | T27 F19 | | |

Λ = 50°

| Mo a | 00 | 20 | 4° | 60 |
|------|---------|---------|---------|---------|
| 0.7 | T28 F20 | T29 | | T30 F21 |
| 0.78 | T31 F22 | Т32 | T33 F23 | |
| 0.84 | T34 F24 | T35 F25 | Т36 | 1650/B |
| 0.88 | | т37 | Т38 | |
| 0.92 | T39 F26 | T40 F27 | | |

- 6.3.3 Flow conditions for
 - aerodynamic coefficient data

 $M_{\rm o} = 0.70/0.78/0.84/0.92$ for $\Lambda = 0^{\rm o}/30^{\rm o}/50^{\rm o}$ plus $M_o = 0.88 \text{ for } \Lambda = 30^{\circ}/50^{\circ}$

- pressure data

- idem
- 6.3.4 Boundary layer and/or wake data
- none
- 6.3.5 Flow conditions for boundary layer and/or wake data

and the best the de desperant parts of the same of the

not relevant

no, see 6.2 6.3.6 Wall interference corrections included ? 6.3.7 Aeroelastic corrections included ? 6.3.8 Other corrections ? no 6.3.9 Additional remarks for the force measurements, the Mach number is not kept strictly constant during the angle of attack variation. See table 42. 6.4 Were tests carried out in different no facilities on the current model ? If so, what facilities. Are data included in present data base ? 7. References Fluctuations acoustiques engendrées par les parois perméables d'une 1. X. VAUCHERET soufflerie transsonique AGARD CP 174 (octobre 1975) 2. M. PIERRE The aerothermodynamic test center of Modane-Avrieux G. FASSO ONERA Technical Note nº 166E (1972) Exploitation du centre d'essais aérothermodynamique de Modane-Avrieux Note Technique ONERA n° 181 (1971) 3. M. PIERRE G. FASSO Essai de l'aile à flèche variable équipée du profil D à S2MA Procès-Verbal d'Essais ONERA nº 1/3072 AYG (not published) 4. J.C. RAYNAL 8 - List of symbols : aspect ratio b : semi-span C : geometric chord (normal to L.E.) ē : aerodynamic chord (= root chord) e/c : airfoil thickness r L.E. : L.E. radius : distance measured chordwise : distance measured spanwise : distance from the plane of the wing : wing area : angle of attack η (ETA) : spanwise location λ (lambda) : taper ratio ∧ (LAMBDA) : sweep angle C : test section area of the wind tunnel M : local Mach number Mo : free stream Mach number p : local static pressure Po : stagnation pressure po : free stream static pressure qo : free stream dynamic pressure To : stagnation pressure Cp : pressure coefficient $Cp = \frac{p - po}{qo}$

 $\texttt{Cp}_{\texttt{C}}$: critical pressure coefficient $\texttt{Cp}_{\texttt{C}} = \texttt{Cp} \ \texttt{for} \ \texttt{M} = \texttt{1}$ X : axial force

Y : lateral force

Z : normal force

1 : rolling moment

m : pitching moment

: yawing moment

 $\mathtt{C}_{\mathbf{L}}$: lift coefficient [based on wall balance measurements]

9. Abreviations

B.L. : boundary layer

L.E. : leading edge

T.E. : trailing edge

TABLE 1 PROFILE D ORDINATES

| x/c | Z/C | x/c | Z/C |
|---|--|---|--|
| .000000 .00050 .000200 .000500 | .000000 001342 002685 004245 006002 | .072500 .077500 .082500 .087500 | 035193 035912 036604 037269 037908 |
| .001700 .002600 .003700 .005000 | 007820 009658 011494 013310 015091 | .105000 .120000 .135000 .155000 | 039405 -,041028 042486 044213 047057 |
| .008300 .010300 .012500 .015000 | 016913 018639 020259 021821 023144 | .235000 .275000 .315000 .355000 | 049242 050853 051902 052369 052230 |
| .020000 .022500 .025000 .027500 .030000 | 024277 025254 -:026106 026857 027528 028136 | .435000 .475000 .520000 .580000 .640000 | 051476 050123 047942 044120 039509 035239 |
| .035000 .037500 .040000 .042500 .045000 | 028696 029221 029719 030198 030663 | .730000 .770000 .810000 .850000 .890000 | -,031601 -,027763 -,023691 -,019335 -,014658 |
| .047500 .052500 .057500 .062500 .067500 | 031119 032003 032850 033663 034444 | .930000 .970000 .990000 1.000000 | 009698 004621 002090 000780 |

PRESSURE HOLES ORDINATES.ETA=0,60

| DUKE | HOLES | ORDINAL | 23.E A= |
|-----------|--------------------|---------|-----------|
| PPER | SURFACE | LOWER | SURFACE |
| X/C | Z/C | X/C | Z/C |
| +.00000 | 00050 | +.00731 | 01594 |
| +.00993 | **01844 | +.02214 | 02523 |
| +.03027 | **02740 | +.04011 | 03008 |
| +.04954 | ••03135 | +.07529 | 03589 |
| +.07515 | ••03548 | +.14011 | 04320 |
| +.10060 | ••03868 ••04287 | +.26028 | 05062 |
| +.13953 | | +.35027 | 05252 |
| +.17976 | *•04601 *•04845 | +.45005 | 05124 |
| *.22010 | *•05036 | +.55019 | 04623 |
| +.26019 | | +.64982 | 03906 |
| • . 30001 | • . 05161 | +.74975 | 02969 |
| +.34026 | *.05226 | +.85020 | 01927 |
| * . 37958 | • . 05236 | +.96999 | 00444 |
| +.41998 | +.05186 | | |
| +.46006 | *.05076 | | |
| +.50001 | **04912 | | |
| +.53980 | •.04678 | | |
| +.57986 | +.04424 | | |
| +.61994 | *.04129 | | |
| • . 65968 | •.03795 | | |
| ••69978 | •.03446 | | |
| +.74009 | +.03071 | | |
| +.77873 | •.02685 | | |
| *.81984 | •.02254 | | |
| +.85977 | *.01800 | | |
| +.90014 | *.01319 | | |
| +.93985 | *.00584 | | |
| | | | |

| IABLE | 0044. | 8 | 0219 | .078 | 132 | 189 | .239 | .247 | ,224 | 2086 | 253 | 117 | , >28 | .112 | 629 | 400. | 418 | . 455 | .390 | .378 | 353 | 323 | .320 | . 326 | .297 | . 278 | 972. | 618 | * * | 137 | 115 | .089 | .059 | 120 | 9 | 5 | |
|-------------------------------------|----------|-----|--------|--------|-----|-----|------|------|-------|--------|-------|-----|-------|------|------|-------|------|-------|-------|-------|-------|------|------|-------|------|-------|------|-------|-------|-------|------|------|------|------|-------|-----|-----|
| | ETA | X/C | 9000. | 30 | 20 | 20 | 450 | 350 | 9 | - : | 100 | 77 | 000 | 000 | 2 | 000 | 35 | 100 | 9 | 9 | 260 | 00 | 340 | 380 | 20 | 0 | 8 | 9 | 9 6 | 000 | 0 | 9 | 9 | 20 | 9 | 3 | |
| TONNEL | 0000 | 3 | . 1300 | 670 | 148 | 250 | .284 | .290 | .249 | 1933 | 175 | 143 | 584 | .105 | .511 | 92. | 777 | 767 | \$65. | 027 | 400 | 4 52 | 423 | 104. | .388 | .359 | 314 | 202. | 200 | 105 | 137 | .087 | .057 | 010 | 25 | 200 | 5 |
| SMA HIND | E V I | x/c | 0044. | 750 | 650 | 550 | 450 | 20 | 260 | 1400 | 0 7 0 | 022 | 000 | 000 | 010 | 0 20 | 32 | 100 | 140 | 180 | 240 | 000 | 340 | 580 | 420 | 180 | 0 | 240 | 200 | 2 2 | 2007 | 740 | 80 | 850 | 860 | 3 | 0, |
| S | . 1500 | 92 | 137 | 90158 | | 5 | .296 | .300 | . 258 | -1925 | 153 | 140 | . 586 | .353 | .371 | 115 | 564 | . 556 | . 529 | . 533 | 500 | 927 | .453 | 077. | .422 | .377 | .352 | 962. | 226 | 177 | 143 | 100 | .061 | .017 | 030 | | |
| CORD = 0.2 EK = 25000 2.010EG | ETA = | X/C | 2 | . 8500 | 2 | 80 | 450 | 350 | 9 | 0071. | 7 7 0 | 22 | 100 | 000 | 010 | 0 2 0 | 30 | 100 | 140 | 180 | 200 | 300 | 340 | 380 | 450 | 460 | 0 | 240 | 200 | 200 | 700 | 740 | 780 | 820 | 860 | 00 | |
| S AFV D NOLDS NUMB | 00000 | a u | .135 | -,0247 | 159 | 245 | 306 | .306 | .260 | 96. | | 9 | 565 | 108 | 520 | .258 | 514 | .563 | .557 | 535 | 517 | 927 | 482 | 400 | 627. | .397 | 355 | 315 | 268 | 077. | 151 | 108 | .069 | .026 | 024 | 2 | 25 |
| SAFEP MANG | ETA = | x/c | 970 | 8500 | 450 | 550 | 450 | 350 | 260 | 200 | 200 | 026 | 070 | 0000 | 0100 | 0200 | 0520 | 1000 | 1400 | 1800 | 200 | 3000 | 3400 | 3800 | 200 | 4400 | 2000 | 0075 | 2800 | 0000 | 2000 | 2400 | 2800 | 8200 | 20 | 006 | 070 |
| A VARIABLE | 0064. | a o | - | | | ~ ~ | | ٣. | 2 | -,2139 | × | 107 | 561 | .110 | .460 | 662. | 513 | .587 | .558 | . 565 | 2276 | 501 | 767 | 480 | 757. | 727. | .379 | . 326 | . 288 | 900 | 158 | 124 | .088 | .041 | 012 | 6 | 2 |
| C N N | ETA = | X/C | 2 | .8500 | 450 | 550 | 20 | 350 | 260 | 2 | 040 | 22 | 000 | 000 | 010 | 6 6 6 | 2 | 100 | 140 | 0 | 25.00 | 000 | 340 | 80 | 450 | 199 | 200 | 240 | 0 | 0 6 | 100 | 740 | C | 870 | 860 | 6 | 4 |
| | . 3000 | t | 0272 | 760. | 178 | 248 | 305 | 309 | .267 | ~. | | 407 | . 552 | .112 | .483 | 250 | 478 | 545 | . 555 | .538 | 0 4 | 707 | 478 | 468 | 657. | 607. | 386 | .310 | 280 | . 77. | 156 | 118 | 2 | .030 | .0132 | 0 : | 2 |
| | E I A II | X/C | .8500 | 20 | 20 | 20 | 20 | 20 | 20 | 0071 | 25 | 2 | 2 | 0 | 0 | 200 | 20 | 00 | 0 | 0 | 2 5 | 000 | 9 | 3 | 20 | 20 | 0 | 9 | 0 0 | 2 | 0 | 07 | 780 | 850 | .8600 | 00 | 07 |

| | | | ONER | A VARIAB | LE SUFEP WA | HING : AFV D | COND = 0 | E 2. | SZMA WIND | TUNNEL | | TABLE 5 |
|---|-------|--------|-------|----------|-------------|---------------|----------|--------------|-----------|---------|---------|---------|
| | | | | | LAMBDA | NEYNOLDS NUMB | ER = 250 | 0000° = 0000 | | | | |
| | ETA | . 3000 | ETA # | 0000 | ETA | 00000 = | ETA | 005/ = | EIA | . 4500 | E T A = | 0000 |
| | X/C | t | X/C | 8 | x/c | 3 | ×/c | 3 | x/c | 3 | A/C | 43 |
| | .8500 | | 2 | 135 | 046 | 138 | 2 | 135 | 0016. | 11186 | 0008. | 0274 |
| | 20 | 2 | 2850 | 1,007 | 0052 | 0043 | . 8500 | 0007 | S | 0563 | 0 | 0745 |
| | ~ | 13 | 20 | 119 | 650 | 128 | | | .6500 | -,1445 | 0040 | |
| | • | 18 | 550 | 181 | 550 | 176 | 50 | 186 | 550 | 189 | 0 | 17 |
| | ~ | 20 | 450 | 510 | 120 | 214 | 20 | .221 | 450 | .225 | 450 | .21 |
| | | 19 | 350 | 196 | 350 | 193 | 20 | .202 | 350 | .212 | 350 | .20 |
| | .2600 | -,1264 | 60 | 130 | 260 | 125 | 260 | 1389 | 90 | 1691 | 0 | -,1536 |
| | • | 02 | 140 | 670 | 7 4 0 | 070 | 0 | .032 | 7 0 | ,036 | 9 | - |
| | ~ | | | | 075 | 3 4 | 73 | 190 | 075 | 5250. | 2 | .03 |
| | 6 | .12 | 0 | 126 | 040 | 124 | 070 | .1206 | 070 | 0180. | 040 | • 05 |
| | 0 | . 18 | 2 | 212 | 025 | 200 | 025 | 197 | 022 | .1829 | 2 | 0.5 |
| | 8 | .81 | 000 | .819 | 200 | .813 | 0 | 9608. | 200 | .796 | ~ | 72 |
| | 8 | 1.00 | 000 | 022 | 000 | 013 | 000 | 322 | 000 | .050 | 000 | 0.5 |
| | 5 | 82 | 010 | 775 | 010 | 845 | 010 | . 626 | 010 | . 810 | 010 | - |
| | 2 | -1./6 | 030 | 788 | 030 | 100 | 0 2 0 | 072. | 030 | 771. | 3 | 4.5 |
| | ~ | -1.72 | 020 | 751 | 020 | 9 | 20 | -1.7109 | 020 | -1.5913 | 0 | -1.4595 |
| | 6 | -1.60 | 075 | 630 | 075 | 284 | 73 | 584 | 25 | 510 | S | 6 |
| | 2 | -1.49 | 100 | 255 | 100 | 486 | 00 | 424 | 100 | 282 | 0 | 53 |
| | 7 | -1.41 | 140 | 435 | 140 | 387 | 0 7 | 725 | 071 | 4.98 | 0 7 - | 77 |
| | 20 | 54 | 180 | 269 | 180 | 987 | 180 | 512 | 180 | 515 | 180 | 77 |
| | 22 | 50 | 220 | 516 | 220 | 505 | 20 | 539 | 220 | ,527 | 0 | .4. |
| | • | *** | 997 | 240 | 200 | . 541 | 00 | 245 | 760 | 7/7. | 007 | 4.0 |
| | 30 | 54 | 300 | 275 | 300 | 519 | 00 | 531 | 300 | 187 | 0 | 36 |
| | 34 | 53 | 340 | 775 | 340 | 535 | 00 | 503 | 340 | 173 | 340 | 36 |
| | 33 | -,57 | 380 | 536 | 380 | 510 | 0 | 485 | 380 | .443 | 0 | 36 |
| | 42 | 15. | 450 | 200 | 420 | 027 | 20 | 797 | 420 | 727 | 0 | . 32 |
| | 97 | - 45 | 460 | 797 | 460 | 432 | 460 | 400 | 20 | 388 | 460 | 30 |
| | 20 | -,42 | 200 | 413 | 200 | 386 | 200 | 381 | 200 | 339 | 200 | .27 |
| | 7 | -, 35 | 240 | 354 | 240 | ,339 | 240 | 320 | 240 | .288 | 240 | 47. |
| | 58 | 30 | 580 | 313 | 580 | 288 | 580 | 276 | 580 | 1247 | 580 | 12 |
| | ~ | 24 | 620 | 257 | 620 | 244 | 620 | .237 | 620 | 210 | 070 | 138 |
| | | | 099 | ,222 | 660 | 200 | 960 | 192 | 960 | 177 | 990 | 2 |
| | 00 | .167 | 100 | 180 | 100 | 161 | 100 | 153 | 00 | 145 | 200 | 3 |
| | 0, | 128 | 140 | 132 | 240 | 114 | 0 7 | 108 | 072 | 960. | 0 | 5 |
| | 80 | . O. | 787 | 760 | 780 | 077 | 780 | .067 | 80 | .062 | 0 | .01 |
| | 20 | . 70. | 820 | 043 | 850 | 970 | 50 | 170 | 820 | \$10. | 3 | 30 |
| • | 90 | 110 | 860 | 110 | 860 | 025 | .8600 | .0276 | 9 | 028 | 0 | 6 |
| | 0006. | 1850. | 0006. | .0632 | 006 | 073 | 00 | 075 | 006 | 620 | 0 | 0 |
| | 00 | 121 | 076 | 117 | 40 | 27 | - 8 | | 07 | 1721. | | |
| | | | 980 | 175 | | | . 9800 | .1815 | 80 | .1772 | | |
| | | | | | | | | | | | | |

| ABLE 6 | | 0064. | 90 | .0279 | | 010 | 112 | 20 | 86 | 200 | 9 0 | 9001 | 2 7 6 | 0 3 | 880 | 956 | 79 | 747 | 677 | .4715 | 00 | 743 | 245 | 0 0 | 441 | 0 0 | 378 | 9 | 60 | . 3025 | 259 | 250 | 202 | 0 | 165 | 9 | | 073 | 0 5 7 | 0 | | |
|-------------|---------------------|----------|-----|-------|-------|------|------|------|-----|-----|------|--------|-------|------------|------|------|--------|---------|------|--------|------|-----|-----|------|------|-------|-----|-------|-------|--------|-----|-----|------|-----|-----|-----|-------|--------|-------|-----|-------|---|
| ۲ | | ETA = | 3/4 | 0000 | | 000 | 200 | 000 | 000 | 0 0 | 000 | 0750 | 007 | 077 | 0000 | 000 | - 0010 | 0300 -1 | 0000 | 750 -1 | 0001 | 007 | 000 | 007 | 0000 | 2,00 | 000 | - 007 | - 000 | - 000 | 004 | 000 | 0000 | | 000 | 000 | 000 | • | 000 | 000 | | |
| TUNNEL | | . 8 > 00 | 3 | 9911. | | .00 | 110 | 441. | 165 | 2 | .000 | 1806 | 0 0 | - 0 | 570 | 00 | 085 | 056 | 925 | 825 | 97 | 689 | 200 | 556 | 440 | 400 | 447 | 426 | 393 | 346 | 295 | 223 | 2.5 | 701 | 155 | 660 | 00 | 918 | 025 | 2 | 100 | |
| SZMA WIND | • | ETA | 3/x | 0044. | | 20 | 20 | 2 | 20 | 550 | 9 | 740 | | 7 2 | 000 | 000 | 010 | 030 | 050 | 2 | 00 | 140 | 0 | 220 | 260 | 20 | 580 | 420 | 460 | 200 | 0 0 | 0 0 | 2 | 000 | 200 | 0 0 | 180 | 20 | 90 | 200 | 0000 | , |
| E 2, | 0000. G MO= .099 | . 7500 | 5 | 5 | .0179 | 9 | | 130 | 148 | =; | 150 | 1801. | | 7 7 | 050 | 00 | 882 | 966 | 950 | 875 | 906 | 721 | 631 | 0.52 | 799 | 475 | 455 | 427 | 388 | 366 | 312 | 220 | 400 | 2 | 151 | 107 | 990 | 021 | 025 | | .1(8) | |
| CORD . | BEK # 250 | ETA | 3/4 | 2 | .8500 | 20 | | 2 | 20 | 0 | 0 | 0041. | 2 | 2 0 | 10 | 00 | 0 | 30 | 20 | 2 | 0 | 0 | 80 | 0 . | 9 9 | 9 9 | 8 | 20 | 09 | 00 | 0 0 | 0 0 | 2 | 2 9 | 00 | 0 9 | 0 | 20 | 9 | 2 | 9800 | , |
| . AFV D | ETNOLDS NUM | 0009. | 43 | - | 9710. | ٥. | °. | ٦. | - | 0 | | . 1243 | u : | . 5475 | . 0 | 8751 | - | 0 | 0 | 00 | 20 | ~ | • | • | - 1 | 2047 | 3 | ~ | ~ | m | M | ~ | ~ . | - | - | - | 0 | 0 | 0 | C . | _ | |
| SWEEP WIN | LAMBDA = 0 | ETA | X/C | 2 | 20 | 20 | 20 | 20 | 20 | 20 | 9 | 0051 | 2 | 3 7 | 10 | 0 | 10 | 20 | 20 | 13 | 2 | 40 | 0 | 20 | 90 | 0 0 | 380 | 007 | 0 4 5 | 00 | 240 | 580 | 250 | 0 | 00 | 0 7 | 0 | 20 | 90 | 0 | 2 | |
| RA VARIABLE | | 0064. | 43 | 9 | 2710. | .028 | .077 | , L. | 132 | 6 | 210 | 921 | - | 7 | 074 | 882 | 068 | 266 | 993 | 915 | 824 | 787 | 726 | 029 | 609 | 5 6 | 422 | 398 | 386 | 359 | 317 | 282 | 629 | 807 | 170 | 125 | 6 2 0 | 042 | 013 | 0 : | 177 | |
| ONE | | ETA | Ale | 2 | .8500 | 750 | 650 | 20 | 450 | 20 | 250 | 140 | | 00 | | 000 | C | 030 | 050 | v | 00 - | 140 | 6 | 220 | 260 | - | 380 | 420 | 460 | C | 240 | 2 0 | 2 | 000 | 001 | C | 001 | 25 | | C (| 000 | , |
| | | . 3000 | * | 200 | | | .080 | = | 175 | 3 | 000 | 1320 | | 9:4 | 1 | × × | 175 | 977 | 975 | 895 | 834 | 746 | 2 | 649 | 515 | 2 4 5 | 4.4 | 402 | 176 | 369 | 312 | 282 | 177 | | 160 | 120 | 640 | 0308 | 110 | 0 1 | | |
| | | E TA 3 | x/c | 20 | 7500 | | 20 | 3 | 20 | 20 | 9 | 0071 | 2 : | 35 | | 000 | 010 | 30 | 050 | 75 | 200 | 140 | 80 | 2 | 90 | 360 | 3 | 20 | 90 | 00 | 07 | 00 | 20 | - | 0 | 07 | 2 | . 8200 | 20 | 0 | 3 | |
| | | | | 2 2 | | | | | • | • | | • | | 7 × | • | | 63 | 1.7 | 4 | 40 | 38 | 11 | 36 | | 77 | | 31 | 30 | 20 | 20 | 11 | 96 | 36 | 76 | 2.5 | 22 | | 20 | 0 | | | |

| ETA 1 .500 | | | | | | | | | | | |
|------------|-------|--------|---------|------------|----------|-------|-------------|-------|--------|-------|--------|
| ETA # .3 | | | | LAMADA= 0. | ALPHA= | 1010. | 6 MO= . (81 | • | | | |
| 2/ | 20 | E TA = | 0064. = | E TA 3 | 00000 | ETA = | .7500 | EVA | . 8>00 | ETA K | 0064. |
| | 10 | 3/4 | 3 | 3/x | 43 | 3/4 | 45 | X/C | 7.7 | 3/4 | 9 |
| - 50 | 135 | 07 | 3 | 970 | - | 0 1 | 0 | 0074 | 1001. | 9000 | |
| 7500 - 11 | - | 8500 | 0088 | 8500 | 9,000- | .8500 | .0003 | | | | |
| | | 750 | 1112 | 2 | 60. | 50 | 93 | 20 | ~ | 3 | 80 |
| 2 00 | 566 | 50 | 15 | 650 | 20 | | | 20 | .180 | 0 | 56 |
| 30 5 | 328 | 550 | .327 | 550 | .30 | 20 | .291 | 550 | .275 | >>0 | 157 |
| 20 - 00 | 754 | 450 | 685. | 450 | . 45 | 20 | 16 | 20 | .381 | 0 | 305 |
| 305 | 876 | 350 | \$550 | 350 | .50 | 20 | 997. | 20 | 614. | 0 | . 529 |
| ·- 00 | 850 | 50 | 024. | 560 | 77. | 90 | .363 | 260 | 385 | 0 | .309 |
| 7 00 | 404 | 170 | 055. | - | 04. | 0 | .383 | 9 | .373 | 0 | 28 |
| 7 0520 | 120 | | | 10 | .39 | 22 | 385 | 075 | .365 | 5 | ~ |
| 2 0000 | 129 | 0 | ~ | - | .63 | 0 | .574 | 0, | . 560 | 0 | .601 |
| 0 01 | 576 | 2 | . 63 | ~ | .6 | 22 | . 557 | 025 | 401 | 2 | . > 42 |
| 0000 | 608 | 1 | . 23 | 200 | . 30 | 2 | 40 | 20 | .369 | ~ | . 350 |
| 0000 | 628 | C : | • | ~ | 9 | 0 | 385 | 000 | 200 | 9 | . 159 |
| 00 | 687 | - | 6 | 0 10 | | 0 5 | 900 | | 400 | 20 | 5 |
| 0000 | 944 | 500 | | 200 | 0 | | 200 | | 227 | | 2 |
| | 531 | 0750 | - 5832 | 075 | -3891 | 0220 | 4213 | 0750 | -3795 | 0720 | . " |
| 1000 | 240 | 100 | 3 | - | 3.5 | 100 | 399 | 100 | 369 | 100 | . 357 |
| 1400 3 | 553 | 140 | 04. | 140 | 5 | 0, | 395 | 140 | .387 | 140 | , 528 |
| 20 4 | 101 | 100 | 3 . | 180 | .42 | 180 | .437 | 180 | 335 | 180 | 240 |
| 22004 | 359 | 520 | . 45 | 220 | 77. | 220 | .453 | 220 | 775 | 7.50 | . 335 |
| 5 00 | 287 | 543 | 4.0 | 2 | 4.5 | 9 | 452 | 20 | 385 | 0 | 341 |
| 3000 | 204 | 300 | 4.5 | - | 44. | 200 | 007. | 200 | 451 | 0 0 | . 520 |
| 7 0075 | 605 | 2 7 5 | 5 | - | 3 | 240 | 167 | 9 9 | 575 | 2 | . 260 |
| 7 00 | 589 | 2 0 | | - | 3. | 380 | 404 | 280 | 3. | 20 | 745 |
| 0024 | - x x | 2 4 4 | 3 | - | 7 . | VV | 405 | 4 4 0 | | 1 | - 60 |
| 20005 | 0 0 | | | 200 | | 200 | 463 | 0 | 376 | 200 | 9 |
| 00 | 157 | C | 32 | - | | C | 301 | 540 | 273 | 0 | .230 |
| 5800 2 | 202 | 280 | 2 | 5 80 | 26 | 580 | .259 | 500 | 233 | SRO | 107. |
| 5- 0029 | 345 | 620 | . 22 | - | 22. | 620 | .226 | 620 | 199 | 070 | 162 |
| | | 660 | 6 | 980 | ×. | 660 | 181 | 960 | 101. | 000 | .139 |
| L 000 | - | 100 | - | 200 | 5 | 0 | 146 | 200 | 142 | 100 | .116 |
| 4007 | ~ | 140 | .12 | 140 | Ξ. | 140 | .102 | 0 | 060. | 140 | 092 |
| 78000 | 0 | 5 | .03 | - | .0. | 80 | .064 | 0 | .001 | 0 | .059 |
| 8200 - 0 | - | 850 | 0. | - | 0 | 50 | 050 | 0 | .014 | 0 | 2 |
| 0. | 570 | 2 4 6 | 5200. | ~ | 6 | 9 | 027 | 20 | .0295 | 0 | 010 |
| 0.000 | V | | S | 7 | 0. | 00 | 2 | 00 | 080 | 0 | 65 |
| 003 | c | • | | | | | | 4 | | | |

| IABLE 8 | | 0064. | 5 | 0259 | | .085 | 200 | 619 | . 280 | . 289 | .257 | . 239 | | - 8 - 8 | 548 | 149 | ,243 | .187 | .023 | 9458 | 36.2 | 306 | 391 | 390 | .362 | 362 | . 575 | 556 | - | 242 | 25. | 173 | 147 | 123 | 960 | 090 | 050 | 22 | 0.0 | |
|------------|----------------------|--------|-----|-------|-------|------|------|---------|-------|-------|--------|-------|------|------------|------|--------|------|---------|---------|---------|------|-------|------|------|------|------|-------|------|-----------|-------|------|--------|------|------|------|------|------|-------|-------|------|
| ' | | ETA . | 3/x | 0000 | 1 | 20 | 20 | 0 | 20 | 250 | 0 | 140 | 2 | 2 7 2 | 000 | 000 | 010 | 030 | 0 > 0 | 0520. | 9 4 | 2 0 | 220 | 260 | 300 | 340 | 0 1 | 20 | 0 0 | 3 5 | 0 0 | 620 | 9 | 700 | 9 | 9 | 20 | 9 | 0 | |
| TUNNEL | | . 8500 | د | .1478 | | 0823 | .158 | 107 | 358 | 346 | .290 | .219 | 200 | -136 | 597 | 148 | 162. | 135 | 107 | 7800.1- | | 2 2 2 | 453 | 436 | 484 | 483 | 401 | 744 | 404 | 2 8 4 | 360 | 204 | 166 | 137 | 083 | 640 | 000 | 9 7 0 | 0 9 8 | 1492 |
| SZMA WIND | | ETA = | x/c | 0074. | | 2 | 20 | 2 | 450 | 350 | 260 | 140 | 2 | 2 7 0 | 000 | 000 | 010 | 030 | 050 | 0520 | | | 220 | 20 | 300 | 340 | 2 | 420 | 9 6 | 20 | 1 0 | 620 | 660 | 200 | 740 | 00 | 820 | 860 | 0 | 0 |
| E 2 | , 1000 MO= , 1784 | .7500 | 85 | 03 | | .085 | | 20 | 34 | m. | 2 | 2 | -: | 1,161. | | .3776 | - | -12 | 60 | -1.0249 | | 0 1 | 3 | 5 | 12 | 2 | 2 | 5 | 3; | 2.5 | | 3 6 | . 00 | - | 60 | 0.0 | 8 | .0433 | 6 | |
| COKD = 0. | EK = 2500 2.000EG | ETA = | x/c | 2 | .8500 | 750 | | 20 | 20 | 350 | 250 | 9 | 2 | 000 | 000 | 00 | 0100 | 0300 | 0200 | 0520 | | | 2200 | 2600 | 000 | 3400 | 000 | 4200 | 0000 | | | 000 | 200 | 000 | 00 5 | 800 | 200 | 20 | 00 | |
| G : AFV D | THOLDS NUMB | 0009. | å | 40 | 0 | .088 | 175 | . 487 | 368 | 369 | 301 | 218 | 200 | 8 6 | 576 | 153 | .281 | 153 | 160 | 2500-1- | | 822 | 732 | 408 | 463 | 245 | 550 | 519 | 0 0 | 3 4 5 | 270 | 230 | 186 | 150 | 101 | 063 | 015 | 037 | 0 9 5 | 148 |
| SAFEP MEN | LAMBDAR 0. | ETA = | x/c | 070 | 8500 | 750 | 920 | 250 | 450 | 350 | 260 | 140 | 2 | 200 | 0200 | 0000 | 0100 | 0300 | 0200 | 220 | | 200 | 2200 | 2600 | 3000 | 3400 | 3800 | 2007 | | | | 6200 | 9600 | 2000 | 2400 | 2800 | 8200 | 20 | 0 | 0, |
| A VARIABLE | | 0064. | 9 | 156 | 0204 | 660 | 130 | 982 | 392 | 383 | 317 | 2 3 9 | | 0 % | 571 | 156 | .226 | 141 | 104 | <010.L- | | 824 | 746 | 675 | .509 | 578 | 365 | 543 | 7 . | 45.4 | 207 | 238 | 205 | 165 | 118 | .081 | 032 | 920 | 0 7 8 | 1341 |
| ONER | | E TA = | XIC | 02 | .8500 | 750 | 929 | 250 | 450 | 20 | 250 | 140 | | 0 0 0 | 000 | 000 | 010 | 030 | 050 | 0240. | | | 220 | 260 | 300 | 340 | 280 | 420 | 5 | 200 | | 620 | 660 | 700 | 140 | 780 | 820 | 20 | 006 | 076 |
| | | .3000 | 2 | .033 | - | | 1907 | -, 5043 | 3779 | 3708 | -,3163 | 2326 | 777. | 2304 | 5609 | 1.1548 | 2509 | -1.1006 | -1.0798 | 87.65 | 17/8 | 7477 | 4729 | 5179 | 5700 | 5904 | 5707 | 5770 | 1 × 5 × 1 | 1,632 | 3010 | - 2554 | | .163 | 120 | 075 | .035 | .0183 | 120 | 124 |
| | | ETA = | x/c | 2 | .7500 | | 10 | 000 | 200 | 3500 | 2600 | 000 | 000 | 0 - | 0200 | 0000 | 0100 | 0300 | 0000 | 0720 | 200 | | 2200 | 2600 | 3000 | 3400 | 3800 | 0027 | 0000 | 000 | 200 | 6200 | | 00 | 072 | 780 | 820 | .8600 | 006 | 40 |

| TABLE | | 0064. | ď | 2670 | | 083 | 135 | 207 | 452 | 20 0 | 2,5015 | | 9 0 | | *** | | | 440 | 478 | 410 | -1,1222 | .051 | \$ 542 | .478 | 795. | . 423 | 416 | 418 | 573 | . 26.5 | . 5000 | 1 | | 173 | 3 7 6 | | | 000 | . 040 | 4400. | t | | |
|-------------|-------------------------|---------|--------|-------|-------|-------|-------|----------|--------|--------|--------|--------|------|------|-------|-------|-------|------|-------|-------|---------|-------|--------|-------|-------|---------|--------|--------|------|--------|--------|-------|-----|-----|-------|-------|---------|-------|---------|-------|-----|-------|----|
| | | ETAN | 3/4 | 0000 | | 2000. | 0000. | . > > 00 | . 4500 | . 5500 | 0007. | | 0000 | 0000 | 0220. | | 000 | 2 4 | 0000 | 075 | 0001 | 0071. | 0081. | .2200 | 0007. | 0005. | . 3400 | . 5800 | 0075 | 000 | 0000 | 200 | 3 0 | 3 6 | 9 6 | | 2 0 | 0 5 | 0078. | 0 | 0 | | |
| TONNEL | | . 8500 | 3 | 0161. | | 000. | 159 | .224 | .272 | .25 | 0.00 | | 200 | - | 4 5 | 0 | 200 | 200 | 304 | 243 | 208 | 168 | 158 | 116 | 077 | 787 | 197 | 3/7 | 385 | 199 | S C | 2 2 2 | | 2 | 30 . | 200 | 0 4 | 2 2 | 0 | ** | 0 | 7771 | 2 |
| SZMA WIND | 2 | EIA | 3/x | 0046. | | 20 | 20 | 20 | 20 | 20 | 90 | 3 1 | 1 | 3 6 | 200 | | 0 0 | - 10 | 200 | 075 | 0 | 0 7 | 180 | 20 | 260 | 00 | 0 7 | 80 | 20 | 9 | 000 | 3 3 | 0 0 | 2 0 | 2 0 | 2 5 | 2 0 | 0 0 | 20 | 90 | 00 | 0076 | 20 |
| E | 0000. MO= . 778 | 0057. | 85 | 0 | | 090 | | = | 261 | 258 | 7271. | \$ 100 | 0 0 | 000 | 701 | 100 | . 554 | 133 | . 317 | 261 | 214 | 175 | .154 | 155 | .145 | .147 | .122 | .006 | 687. | . 329 | -,2654 | 200 | | 201 | | 3 | 3 . 0 . | 100. | 300 | 5 | 260 | | - |
| CORD = 0. | BER # 2500 = 4.020EG | ETA = | 3/x | 0 | .8500 | 750 | | - | - | - | - | | | - | | | - | - | - | | - | - | - | - | - | - | - | - | - | - | 0005. | | - | - | - | _ | _ | - | - | - | - | | |
| 16 : AFV U | DEG ALPHA | 00000 | ر م | - | 9500. | 050. | .148 | .214 | .267 | .242 | -,1621 | | 660 | 0 . | 7 . | 187. | 2 . | 1000 | 208 | 248 | 211 | 171 | 145 | 144 | 145 | 0 + 1 . | .149 | 128 | 088 | 752 | -,3759 | 0 7 2 | 5 | 200 | 000 | 0 2 2 | 000 | 670 | 010 | 0 2 7 | 103 | 153 | |
| NAME P HAN | LAMBDA . 0. | E A I | x/c | 5 | 8500 | 50 | 20 | 20 | 20 | 20 | 9 | 9 1 | 2 | 2 5 | 77 | 000 | 0 : | 2 5 | 200 | 2 | 2 | 0 4 | 0 % 1 | 220 | 0 4 | 3 | 340 | 0 | 20 | 9 | 00 | 9 1 | 0 6 | 2 : | 0 0 | 0 : | 9 5 | 2 | 2 | 9 | 0 | 2 | |
| NA VANIABLE | | 0064. | 9 5 | .1766 | .0065 | 790. | .135 | .218 | . 271 | 542. | 1881. | 050. | | | | 2 | 107 | 3 | 350 | 2 | 221 | 183 | 158 | 158 | .156 | .159 | 152 | 161 | .125 | 710 | 5595 | | 0 0 | 2. | | 0 0 | 0.08 | 250 | \$ 500. | 4 | ~ | .1455 | + |
| ONE | | 41. | AIC | 5 | CUSE. | 5 | 2 | 20 | 2 | 2 | 5 | , | | | 2 | 0 | | - 6 | | 1 | 5 | 5 | 0 | 0 | 4 | 00 | 2 | 4 | 2 | | 6 | | 0 | | | | | C | 0 | 4 | | 0076 | C |
| | | . 2000 | 2 | 0 | 0505 | | - | , 224 | \$92. | 777. | | 970 | | • | | 0 2 3 | 001 | 2 . | 200 | 7 4 7 | 120 | 154 | 135 | 134 | 124 | .150 | 143 | 134 | 111. | . 61 | -,4705 | | | 7 | | 1 1 | 070 | . 03. | 0056 | 2 | 2 | 7 | |
| | | H 4 1 1 | X/C | 2 | .7500 | | 5 | 20 | 20 | 20 | 9 | 9 1 | 2 | 070 | 7 | 0 | 0 : | 2 5 | | 7 | 000 | 140 | 20 | 220 | 260 | 3 | 0, | 380 | 025 | 20 | 2000 | 9 | 200 | 2 | | 3 | 7 | 2 | .8200 | 90 | 00 | 4 0 | |
| | | | | 21 | | 12 | - | 10 | • | α | | • | | • | ~ | | - : | | - 04 | 2 0 | 4 4 | 37 | 3.5 | 35 | 3.6 | 33 | 32 | 31 | 30 | 53 | 000 | 22 | 92 | 0 | 72 | 23 | 22 | 54 | 20 | 10 | 0 | 1 | 16 |

And the second state of the second se

| | 0000 | a 5 | 0070 | 1 | 2 1 | 200 | 448 | 420 | .370 | 342 | 501 | 7106 | 415 | 0 | 690 | .818 | 199. | . 534 | ,,, | 356 | .423 | . 593 | . 398 | 450 | 465 | 4 7 0 | 550 | .484 | .238 | 186 | 157 | 129 | 001 | 200 | 000 | 100 |
|-------------------|--------|------------|-------|-------|------|-------|--------|--------|--------|------|------|-------|-------|--------|------|--------|-------|---------|-------|-------|--------|-------|-------|------|-------|-----------|------|------|--------|------|------|------|-------|-------|--------|-----|
| | E A E | 3/4 | 0000. | 3 | 2 0 | 0 | 2 5 | 20 | 00 | 9 | 2 | 0040 | 10 | 00 | 10 | 20 | 20 | 2 | 9 9 | 0 0 | 220 | 00 | 300 | 340 | 0 0 | 4 6 6 | 0 | 240 | 280 | 07 | 00 | 0 | 3 2 | 0 9 | 2 0 | 2 5 |
| | . 8500 | à | 1001. | | | * | | 502 | 470 | 391 | 414 | 2679. | 424 | 8 | .065 | .712 | . 568 | .454 | 700. | 0 | 097 | .493 | .531 | 574 | . 554 | 0000 | 650 | 424 | .259 | .192 | .159 | .152 | 000 | ** | - 000 | 9 0 |
| ~ | EIA = | x/c | 0026. | - | 2 0 | 200 | 200 | 350 | 9 | 0 7 | 075 | 0070 | 770 | 000 | 10 | 030 | 020 | 042 | | 0 | 220 | 260 | 300 | 340 | 280 | 20 | 500 | 240 | 580 | 20 | 90 | 100 | 0 0 | 200 | 020 | 0 0 |
| 000. MO= . 040 | 0057. | d 5 | 0 | .0280 | 000 | 007 | 444 | 554 | 400 | .387 | .420 | 6315 | 717 | 400 | 167 | .681 | .554 | 422 | 702 | 396 | 687 | .535 | .570 | 595 | 613 | 0 0 0 | 708 | 0020 | .367 | .212 | .152 | 112 | 270. | 000 | 000 | |
| EK = 2300 | ETA = | 3/4 | 20 | .8500 | 120 | 3 | 7 10 | 20 | 60 | 140 | 2 | 00400 | 700 | 0 | 010 | 030 | 20 | 075 | 0 0 | 200 | 220 | 260 | 00 | 07 | 0 0 | 4 4 | 00 | 540 | 580 | 20 | 60 | 200 | 140 | 2 0 | 2 4 | 0 0 |
| THULUS NUMB | 0009. | ر م | 0 | 0. | .055 | 228 | 200 | 571 | 500 | 2 | 855. | 199. | 4 4 6 | 6 | .088 | 28 | .482 | 358 | 0 0 | 475 | 797 | 667. | .513 | 587 | . 621 | 0 * | 717 | 742 | 00 | .337 | 116 | 200 | 190 | | 2 5 | 0 0 |
| LAMBDAE O. | ETA # | x/c | 2 | 9500 | 2 | 550 | 200 | 350 | 260 | 140 | 075 | 2 5 | 200 | 000 | 010 | 030 | 0 2 0 | 075 | 200 | 2 0 | 220 | 240 | 300 | 072 | 380 | 2 4 4 | 200 | 075 | 580 | 950 | 999 | 200 | 740 | 200 | 0 7 0 | 0 0 |
| | 0064. | 4.3 | - | 50 | 780 | 283 | - 1 | 265 | 324 | 384 | 1 | 0,170 | - 0 | 0 | 157 | . 661 | 453 | 248 | 200 | 625 | 265 | 510 | 254 | 2/4 | 5 1 5 | 00 | 754 | 757 | 611 | 214 | 510 | 127 | 0/2 | 2 4 5 | 200 | |
| | ETA = | 3/4 | 0 | .8500 | 5 | 20 | 4.50 | 350 | 6 | 140 | | 0010. | 100 | 000 | 010 | 030 | 050 | 200 | 0 0 | | 220 | 240 | 300 | 0 | 200 | 2 | 500 | 240 | 580 | 950 | 260 | 100 | 0 7 6 | | | 000 |
| | nane. | b | | 083 | | 1067. | - 6036 | - 5805 | -,5159 | 5838 | 5149 | 7.7.3 | 8184 | 1,1946 | 1754 | -,6755 | +764- | -, 5135 | . 524 | 1 203 | -,4613 | 1067 | 51/8 | 5544 | 5809 | 5449 | 7254 | 7095 | -,72/3 | 5117 | | 120 | 010 | 040 | 15.00. | 1 |
| | EIA = | X/E | nncs. | .7500 | | 2 : | 2 2 | 200 | 09 | 0 7 | 7.5 | 0070 | 7 | 000 | 0 | 030 | 20 | 075 | 100 | 0 | 220 | 260 | 300 | 0 0 | 000 | 7 7 0 7 7 | 00 | 540 | 580 | 20 | | 200 | 140 | 0 0 | 0078 | 0 0 |

NAME OF A PRODUCTION OF A PRODUCT OF A PRODU

| | | | | | ¥ | Z | BEK = 250 | • | | | | |
|----------|-------|--------|------|-------|------------|-------|-----------|---------|--------|--------|-------|---------|
| | | | | | LAMRDA= 0. | ALPH | 2010. | ** - OH | 90 | | | |
| | EIA = | . 3000 | ETA | 0000 | E LA II | 0000 | ETA | 0057. = | E.A | . 8>00 | FIA | 0000 |
| | X/C | b | X/ C | 3 | X/L | 3 | 3/4 | 43 | X/C | 3 | 3/x | 3 |
| <u>.</u> | 2 | 30 | 0 | 24 | 0 7 0 | | 2 | 3 | 0044. | 1920 | 0008. | 0209 |
| | .7500 | 050- | 8500 | .0. | 8500 | .0202 | .8500 | .0212 | | | | |
| | | | 2 | 108 | 150 | 0 | 150 | 790 | . 1500 | ? | 0007. | ? |
| | 2 | .15 | 650 | 141. | 920 | 0 | | | 20 | 0 | 2 | 9 |
| | 20 | , 54 | 250 | 245. | 250 | 2 | 20 | .439 | 20 | .304 | 20 | . 45 |
| | 450 | . 56 | 450 | . 588 | 7 20 | 2 | 20 | . 564 | 450 | 0 | 20 | 0 |
| | 20 | 4 | 2 | .441 | 20 | 3 | 350 | 4297 | 350 | .428 | 20 | . 37 |
| | 260 | . 34 | 260 | .358 | 260 | 34 | 69 | .308 | 9 | ~ | 0 | .31 |
| | 140 | .24 | 140 | . 549 | 140 | 22 | 07 | ,238 | 140 | .249 | 9 | -, 2884 |
| | 075 | - | | | 075 | 2 | 75 | .156 | 075 | .174 | 2 | 3 |
| | 040 | . 23 | C | 4587 | 070 | 2 | 040 | .202 | 0, | .256 | 9 | .34 |
| | 120 | 77. | 2 | .203 | 025 | 20 | 22 | .182 | 022 | .155 | 77 | . 43 |
| | 200 | . 56 | 1 | .576 | 200 | .57 | 0 | .5956 | 000 | . 599 | 2 | . 55 |
| | 000 | 6. | 0 | .189 | 000 | £. | 000 | 337 | 000 | 183 | 000 | 30 |
| | 010 | 90. | 2 | .041 | 010 | .0. | 10 | .019 | 010 | 100 | 2 | .01 |
| | 030 | œ. | C | .889 | 030 | 06. | 30 | .882 | 030 | .892 | 20 | . 95 |
| | 020 | * * | | 798. | 020 | . 35 | 020 | -, 8538 | 020 | 878 | 2 | . 89 |
| | 075 | . 76 | ~ | 130 | 075 | . 78 | 75 | .813 | 2 | .810 | 3 | . 82 |
| | 100 | | | . 755 | 100 | .74 | 00 | .772 | 00 | . 776 | 9 | /884 |
| | 0071 | (387 | 1400 | 7245 | 2 | 2 | 0071 | 7485 | 9 | 2692. | 9 | .72 |
| | 9 | | C | 517. | 9 0 | | 80 | .758 | 180 | .745 | 9 | .04 |
| | 250 | | 2 | 7.55 | 220 | 2 | 50 | .753 | 20 | .752 | 750 | 4252 |
| | 250 | 5. | 2 | . 755 | 260 | .73 | 69 | .755 | 260 | . 766 | 0 | . 45 |
| | 300 | | 5 | 141 | 00 2 | .73 | 00 | .768 | 300 | .772 | 300 | |
| | 340 | 77. | | 791. | 072 | `. | 60 | .783 | 0 | 213 | 9 | -,4737 |
| | 380 | ٤. | 2 | . 792 | 380 | 2 | 80 | .791 | 30 | | 20 | |
| | 650 | cx. | 2 | 854 | 750 | 28. | 20 | 158 | 0 | 714 | 20 | 5119 |
| | 095 | 8 | 2 | 158 | 450 | . 8. | 00 | 870 | 20 | 245 | 2 | |
| | 00 | 00 | | 768. | 200 | ×. | 00 | .881 | 00 | 215 | 0 | |
| | 240 | ×. | C | 768. | 240 | · × | 07 | .878 | 0 | 929 | 0 | |
| | 580 | 83 | C | . 850 | 280 | .80 | 280 | .528 | 30 | 541 | 30 | |
| | 670 | 0 | | 786 | 420 | .69 | 20 | .285 | 0 | 156 | 2 | • |
| | | | | 614 | 440 | .39 | 60 | 172 | 20 | 150 | 2 | • |
| | 00 | 177. | - | . 501 | 100 | .21 | 00 | .089 | 200 | 601 | 2 | -,1339 |
| | 240 | 4 | | 156 | 0 | 0. | 63 | .032 | 140 | 058 | 9 | |
| | 780 | .018 | ~ | 190 | 200 | 2 | 80 | 0200. | 0 | 150 | 20 | 0520 |
| | .8200 | 2750. | 2 | 0 53 | 020 | 50 | 20 | .0443 | 0 | 017 | 20 | 0180 |
| | 860 | - | 4 | .0915 | 0 4 | 5 | 60 | 035 | 20 | 5 | 20 | .0275 |
| | 005 | 2 | 5 | 157 | 00 | 14 | 00 | 127 | 00 | 113 | 9 | .0795 |
| | 0 7 | 73 | | 1181. | 2 | 5 | | | 0 | 165 | | |
| | | | ~ | .7512 | | | DOXA | . 2350 | 0 | 275 | | |

12

| NATION N | | | | | LAMBDA= 0 | ישוני אוראים יישורי | 0.000 | -01 | 0 | | | |
|--|-------|-----------|-------|-------|-----------|---------------------|-------|---------|-----|-------|------------|-------|
| | 4 | onc. | 4 | 064. | 4 | . 600 | 4 | 150 | 4 | . 85 | • | • |
| 1000 | 3/x | | | | - | | - | | x/c | 3 | • | 85 |
| 1000 | 820 | 010. | 4:0 | | 3 | | 270 | 112. | 2 | 20 | 00 | .436 |
| 1000 | 150 | . 617 | C . C | | 2 2 2 2 | • | 850 | .617 | 3 | | | 4 |
| 1000 | 0000 | | | | 2 2 | . 4 | 20 | * * * * | 200 | |) C | |
| 1000 | , , | 5559 | 5 5 | | 5 5 0 | | 50 | 3 | 550 | | 0 | - |
| 1, | 4500 | 5025- | 450 | | 450 | | 450 | 00 | 450 | | 450 | 3 |
| 1, | 3500 | 5429 | 350 | | 350 | " | 350 | 20 | 550 | | 550 | 3. |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | .2500 | 1.2941 | 260 | | 260 | 2 | 260 | 55 | 260 | | 007 | |
| 17.7 17.7 17.5 | 1400 | 1624 | 140 | | 140 | ٦. | 140 | 5.3 | 140 | | 140 | .21 |
| 1, | 0520 | 0058 | | | 975 | ٠. | 075 | 35 | 075 | | 075 | 2. |
| 1,125 | 0000 | 1749 | 2 | 3 | 040 | ۲. | 0 7 0 | 20 | 070 | | 040 | 3. |
| 1000 | 0120 | 71.1- | 0 | ~ | 022 | ٦. | 025 | = | 025 | | 0.52 | - |
| 1, 2, 2, 3 | 0000 | 1559 | 0 | . 526 | 200 | • | 000 | - | 000 | ٠. | 000 | |
| 1000 | 0000 | 1,2288 | 00 | .227 | 000 | ~ | 000 | 2 | 000 | | 000 | .21 |
| 1000 | .0100 | 5001. | 0 | | 010 | 6 | 010 | æ | 010 | ٠. | 010 | 9 |
| 1000 | .0300 | 0 x 10. | 0 | Ch | 030 | ۰. | 030 | ~ | 030 | • | 020 | - |
| 1000 | 0050 | 6113 | 0 | • | 150 | | 020 | .630 | 020 | • | 020 | .0 |
| 1000 | 0520 | > 4.74 | 0 | • | 075 | | 075 | . 589 | 075 | | 075 | • |
| 1,000 | 1000 | 5156 | - | | 100 | 'n | 100 | . 561 | 100 | | 00 - | |
| 100 | 1400 | 6815. | 2 | • | 140 | S. | 140 | .548 | 140 | | 140 | \$ 29 |
| 1000 | 1800 | 2615 | - | ^ | a C | s. | 2 80 | 275. | 180 | ٠. | 9 | 9 |
| 100 | 2200 | -,525 | 25 | | 220 | s. | 220 | . 569 | 550 | S | 250 | 2 |
| \$400 - 55407 | 2600 | 2075 | 2 | | 260 | s. | 260 | 581 | 260 | | 200 | 2 |
| 0.00 .5420 .5430 | 3000 | 5407 | 2 | | 300 | S | 200 | 298 | 300 | | 200 | 5. |
| \$40 - 6458 | 2400 | 5456 | 72 | | 340 | • | 240 | 129 | 340 | • | 240 | 77. |
| 200 - 6696 | 3400 | 0609 | 3 | • | 180 | ě. | 380 | .635 | 380 | | 380 | . 48 |
| 100 - (755 | 4200 | 6595 | 42 | 0 | 420 | 9. | 450 | 769. | 420 | ٦. | 075 | . 32 |
| 100 - 7371 | 0097 | 6800 | 7 | • | 450 | ٠. | 099 | .715 | 460 | .7526 | 004. | . 52 |
| 100 - 7749 | 2000 | 61.62 - | 5 | ~ | 200 | | 200 | .737 | 200 | ٦. | 200 | . 24 |
| 700 - 7727 | 0075 | 0 7 2 4 0 | 25 | - | 240 | ٠. | 240 | .765 | 240 | - | 240 | 53 |
| 200 -7857 -6200 -8051 -6200 -7859 -8850 -7859 -7859 -8850 -7859 -8850 -8850 -7859 -8850 - | .5800 | 105/ | 25 | | 5 8 0 | ۲. | 580 | .785 | 580 | ~ | 280 | 25 |
| 46.00 -7894 -7894 -7894 -7894 -7895 <td< td=""><td>.6200</td><td>1787 -</td><td>52</td><td>-</td><td>620</td><td>۲.</td><td>620</td><td>.805</td><td>620</td><td>~</td><td>070</td><td>34.</td></td<> | .6200 | 1787 - | 52 | - | 620 | ۲. | 620 | .805 | 620 | ~ | 070 | 34. |
| 40.0 - 775 - 785 < | | | 4 | - | 440 | ۲. | 660 | .735 | 660 | ^ | 000 | . 54 |
| 740 - 740 - 740 - 740 - 7522 - 740 - 3080 - 3080 - 700 | 10 | . (73 | 02 | - | 700 | - | 700 | .375 | 700 | ۲. | 700 | 7 |
| 7800 - 7354 7800 - 7458 7800 - 7193 7800 - 2978 7800 - 6904 7800 - 46 8200 - 777 7 777 777 777 777 777 777 777 7 | 74 | 5). | 71 | ~ | 740 | ۲. | 240 | .308 | 140 | - | 740 | 55 |
| 71. 0048, 0442. 0820 | 78 | 17. | 10 | - | 780 | ۲. | 780 | 166. | 780 | | 0 | 46 |
| 8600 - 85785 8600 - 8600 - 8500 - 8500 - 8500 - 8500 - 8600 - 9832 9000 9262 9000 - 91 | 82 | ٢. | 50 | - | 020 | ٠. | 820 | .297 | 820 | 2 | 0 | 1 |
| 10. 0009. 5350. 0009. 5882. 0009. 5279. 5082. 5019. 5779. 5082. 0096. 5775. 0096. 5882. 0096. 5785. 0096 | 4 | .67 | × | - | 840 | 7. | 850 | .298 | 860 | 0 | 0 | 0.5 |
| 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 5 | .5. | 0 | 4172 | 000 | ~ | 006 | 2 X C | 000 | C | - | 0 |
| | è | | | | | • | | | 100 | > | • | |

| | | | ONE | RA VARIABLE | NIM GHAPS | G : AFV D | CORD . 0. | . Z M | SZMA WIND | TONNEL | | TABI |
|------|-------|-----------|--------|-------------|-----------|---------------|-----------|----------------|-----------|--------|-------|----------|
| | | | | 7 | AYRDA=50 | ETNOLDS NUMB. | ER # 2500 | 1000. = 0 to 1 | 4 | | | |
| | ETA | 0005. = | FTA | 0044. = | E T A 3 | 0009. | ETA = | 0057. | ETA # | . 8500 | ETA | 0044. |
| | x/c | t | x/c | do | 3/x | 3 | x/c | 85 | 3/x | 3 | x/c | 5 |
| 2 7 | .8500 | 0070- | 20 | 089 | 2 | - | 2 | 011 | 0046. | 9711. | .8>00 | \$240. |
| | 20 | 101. | 0058 | 0512 | 0054 | .0191 | .8500 | 9700- | 2 | • | 9 | = |
| 2 | - | 147 | 200 | 9 5 9 | 200 | - | 2 | .000 | 0000 | 1062 | 6500 | 7070 |
| | 5500 | 2171 | 20 | 211 | 20 | | 50 | ٦. | 20 | | 20 | |
| | 0 | 263 | 450 | 266 | 20 | . ~ | 4500 | 2373 | 20 | 2175 | 20 | 1651 |
| • | 0 | 281 | 350 | 282 | 50 | ~ | 50 | ~ | 20 | ~ | 20 | C |
| | 260 | 74 | 260 | 243 | 40 | ~ | 69 | ~ | 60 | ~ | 9 | ~ |
| • | 140 | .265 | 63 | 782 | 07 | ~ | 07 | 2 | 40 | ~ | 0 | N |
| • | 075 | .297 | | | 23 | ~ | 75 | ~ | 13 | ~ | 12 | |
| 7 | 070 | 7. | 0070. | • | 070 | ٣. | 40 | F. | 40 | m | 9 | • |
| | 021 | 275 | .0220 | S | 22 | 7. | 22 | 7. | 022 | ٠. | 22 | |
| | 200 | 990 | 00 | | 200 | • | 0 | • | 000 | • | 07 | • |
| - | 000 | 80 | 00 | | 000 | α. | 00 | ~ | 0 | * | 00 | œ |
| 63 | 0 | .078 | 0010. | | 010 | ۲. | 2 | 0082 | 010 | ٠. | 0 | ~ |
| 5 | 0 | 107. | .0300 | • | 030 | ٦. | 30 | 7. | 30 | 3 | 30 | S |
| 40 | 0 | 162. | 0050. | m | 020 | ٣. | 20 | | 0 20 | r. | 20 | 3 |
| 0 | 075 | .25 | 0 | ~ | 075 | ~ | 73 | 2 | 075 | r. | 2 | P |
| ec | 0 | 2 | 1000 | \sim 1 | 00 | 2 | 0 | -,2756 | 0 | ~ | 0 | -,3457 |
| 25 | 0 | . 253 | 1400 | ~ | 0 | 2 | 07 | ~ | 20 | ~ | 9 | |
| 3.6 | 0 | .241 | 1800 | \sim | 0 | -,2882 | 80 | 2671 | 0 | -,2554 | 80 | ~ |
| 33 | - | .26/ | . 4200 | ~ | 2 | | 20 | ~ | 20 | 2 | 2 | ~ |
| 78 | 0 | .248 | .2600 | ~ | 250 | 2. | 9 | ~ | 260 | 2 | 9 | |
| 33 | 0 | .269 | .3000 | N | 0 | 2. | 00 | ~ | 0 | 2. | 0 | |
| 32 | 0 | . 549 | .3400 | N | 340 | 2. | 07 | ~ | 0 | 2. | 0 | |
| 21 | 0 | .271 | .3800 | \sim | 380 | ~ | 8 | ~ | 8 | 2. | 9 | |
| 20 | 0 | .272 | 0007. | \sim | 20 | ~ | 20 | ~ | 2 | ~ | 20 | |
| 6 | 0 | . 255 | 0095 | ~ | 9 | 2 | 9 | 2 | 9 | 2 | 9 | |
| EC (| - | 577 | 0000 | u (| 2 | ~ . | 0 | -,2235 | 2 | 2. | 3 | 7,176 |
| 2. | 0 | 102. | 0075 | | 0 7 | - | 9 | - | 9 | - | 3 | |
| 20 | 0 | 261. | . 5800 | _ | 20 | - | 8 | - | 0 | - | 200 | |
| 52 | | .179 | 0029. | _ | 0 | - | 20 | - | 2 | - | 2 | |
| 30 | | | 0099. | _ | 9 | • | 00 | - | 9 | - | 0 | |
| 52 | 9 | 011 | 2000 | _ | 00 | - | 0 | - | 0 | 0 | 0 | |
| | 9 : | | 0077 | - : | 2 5 | 7780. | 9 | • | 3 | 0000 | 9 1 | |
| 17 | 9 | .080 | 0087 | 3 | 9 | • | 9 | • | 20 | • | 9 | 5500. |
| 0 | 0 | .060 | . 8200 | | 0 | C | 20 | 0 | 2 | 0 | 20 | .0289 |
| 6 | 0 | .034 | .8600 | 0 | 20 | ٥. | 9 | .0051 | 00 | .0188 | 0 | .0539 |
| • | 0006 | 0000 | 0006. | .0132 | 00 | C | 00 | .0386 | 0006. | 0 | 8 | .0858 |
| 11 | 0 | 30 | 0076 | .0523 | 00 | 7790. | | - | 9 | 0 | | |
| 91 | | | 0046. | 0 | | | . 9800 | .1185 | 8 | • | | |

| | | X | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 4 0000000000000000000 | | * * * * * * * * * * * * * * * * * * * | | m / v wwwwaarawooth | | X % Y % W X X X X Y X Y X Y X Y X X X X X X X X | 7 |
|--|---|---|--|---|---|--|--|---|--|---|---|
| X/C CP X/ | 00 00000000000000000000000000000000000 | X WONGOVAMNE CCCCOCCELELU | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | X WWW.WWW.WAY.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C | 0 C C C C C C C C C C C C C C C C C C C | X PMF W44W1-0000000000000000000000000000000000 | CCC PFFCCCFKCFU | > ~ NNNNNNAY ~ 4 NOOF N | 0 0000000000000000000000000000000000000 | X 8 | 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 1926 1920 | | 00000000 00000000000000000000000000000 | 00000000000000000000000000000000000000 | 6 8 7 4 7 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 0 C C C C L L C C C L V K C C A C C | 000 000 000 000 000 000 000 000 000 00 | CCC PPPCCCPKCPU | ~ WWWWWAY~4WOOF | 0 0000000000000000000000000000000000000 | 8 7 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00000 0.00000 0 |
| 1,224 1,240 1,240 1,424 1,42 | | 00000000 00000000000000000000000000000 | 0.00+4+0.0 + 0.00+0.4+0.0 + 0.00+ | 8 W W W W W W W W W W W W W W W W W W W | | 20 00000000000000000000000000000000000 | CC FFFCCCFKCFU | N N N N N N N N N N N N N N N N N N N | 1111111 L | 00000120000000000000000000000000000000 | 11111111111111111111111111111111111111 |
| 1,224 1,22 | | - | 2014110 + 10040441 2014110 + 1004104410 | 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | | 00000000000000000000000000000000000000 | · · · · · · · · · · · · · · · · · · · | 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 111111 1 | 10000 1 M W W W W W W W W W W W W W W W W W W | 11111111111111111111111111111111111111 |
| 1926 | 11111111111111111111111111111111111111 | 00000 00000000000000000000000000000000 | 14416 4040444 64416 40404440 | MALWA 4000000000000000000000000000000000000 | 1111 | WAKU40000000 WWW.4474VCCLWW | +++ccc+ke+uv | 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 11111 L | 00000 0000 0000 0000 0000 0000 | 11111111111111111111111111111111111111 |
| 1,222 1,500 | | AWVL 000000000000000000000000000000000000 | 44/4 404 6444 44/4 6048444 | 4 W W C C C C C C C C C C C C C C C C C | 111 | 4 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | ************************************** | MMOONEARONN | 1111 | 100000 10000 10000 10000 | 11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1 |
| 1,222 1,240 1,24 | | MWL 000000000000000000000000000000000000 | 450 + C 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | W W Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y | 11 | WW-0000000 WW-00000000 WW-00000000 | recepter | W 4 4 4 4 6 5 4 | 111 | 2444 | 1112 1112 1112 1112 1112 1112 1112 111 |
| 0.0772 0.0772 0.0772 0.0772 0.0772 0.0773 0. | 00000000000000000000000000000000000000 | 00 0VFCCONOCOC | FG 504447 | 0.000000000000000000000000000000000000 | | 000000000 | CCCLKCLA | 94 P 4 N O O F M | 000 C L V 4 4 C C | 4460000 | 2711. 2000. |
| 1,400 | 11111111111111111111111111111111111111 | 4 4000000000000000000000000000000000000 | 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 4 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | | 44466666 000000000000000000000000000000 | CCLKGLan | 4 - 4 NOOF | 0 C L V 4 4 C C | 460000 | 11 00001111111111111111111111111111111 |
| 1722 | 12111111111111111111111111111111111111 | 4VCC4WRYC48V | 50000000000000000000000000000000000000 | 00000000000000000000000000000000000000 | | 00000000 74700000 | CHKCHUD | M J NOOF | C. C | 70000 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| 1724 | 11111111111111111111111111111111111111 | 00000000+++ v | 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 00000000000000000000000000000000000000 | | 0000000 | - K C + u b | JNOOFF | 244 | 40000 | 11 0.4.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0. |
| 17470 | 11111111111111111111111111111111111111 | VCCC444VC44V | 0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 00000000000000000000000000000000000000 | . 7444 . 6794 . 1. 6799 . 1. 6799 . 1. 6799 | VCCC VCC | V. C. L. M. D. | 0000 | 24.45. | 000 | 11 11 12 13 13 13 13 13 13 13 13 13 13 13 13 13 |
| 1,495 | 11111111111111111111111111111111111111 | CC000CC+++ V | 445 445 445 445 603 | 00000000000000000000000000000000000000 | -1.6293 -1.0394 | 0000 | | 0000 | 44. | 000 | -1.0184 -1.0184 |
| 1,0057 | 11111111111111111111111111111111111111 | C C C C C C C C C C C C C C C C C C C | 7080 | 000000000000000000000000000000000000000 | -1.4348 | 0000 | - " | 000 | -1.06 | 00 | -1.3464 |
| 1,495 1,400 1,418 1,409 1,418 1,409 1,41 | 124 | 4 K K C 4 8 4 | 445 | 00000 | -1.0294 | 010 | "." | 0 | -1.06 | 010 | -1.0184 |
| | 20000000000000000000000000000000000000 | 00000000 | 448 | .0300 | 7. | 020 | • | - | • | | -1.3464 |
| | 666006006600660066 | 0000000 | . 703 | .0500 | • | 050 | | 0 | -1.4 | 03 | - |
| | 60000000000000000000000000000000000000 | 2444 | .703 | | ٣. | | -1.3498 | 0.5 | 7 | 050 | -1.2935 |
| - 5347 | C00C00CC00C0 | 244 | • | 0574. | | 075 | 7483 | 0 | • | 07 | 7190 |
| | 00000000000000000000000000000000000000 | 1 4 6 0 0 0 0 | . 485 | .1000 | ٠. | 10 | 4057 | 10 | · | 10 | ~ |
| | 00000000000000000000000000000000000000 | 100 | 775. | 0076. | ·. | 140 | 5336 | 14 | i | 140 | × |
| - 4999 - 2200 - 4856 - 2600 - 4844 - 2600 - 4872 - 2600 - 4887 - 2600 - 4887 - 2600 - 4887 - 2600 - 4888 - 2600 - 4888 - 2600 - 4889 - 3800 - 4888 - 4800 - 4889 - 3800 - 4888 - 4800 - 4889 - 3800 - 4888 - 4800 - 4889 - 4880 - | 60000000000000000000000000000000000000 | 230 | . 531 | . 1800 | 7. | 180 | 9067 - | 20 | · | 180 | - |
| | 22000000000000000000000000000000000000 | 1 | \$67. | .2200 | 4. | 220 | 8027- | 22 | • | 220 | 82 |
| | 2000000 | 240 | .465 | . 2600 | 7. | 260 | 4372 | .2600 | · | 260 | 356 |
| 7.4108 | 1111111 1111111 1 1 1 1 1 1 1 1 1 1 1 1 | 300 | .433 | .3009 | 4. | 300 | ٦. | 30 | 375 | 300 | .343 |
| 7.3878 | 11111 | 440 | .446 | 6072. | ٧. | 340 | ٣. | 34 | 354 | 340 | . 205 |
| - 3837 | 11111 WWW.VV | 407 | .405 | .3800 | ۳. | 3800 | ٣. | 8 | 338 | 380 | . 274 |
| - 3376 | 23.20 | 420 | . 168 | .4200 | | 627 | ۳. | 77 | 705 | 727 | 240 |
| | 272 | 440 | 972. | 0047. | ۳. | 097 | | .4600 | 781 | 197 | .210 |
| -7724 -5400 -7732 -5400 -7558 -5400 -7853 -5400 -7754 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5800 -7757 -5600 -7757 -5600 -7757 -5600 -7757 -5600 -7757 -7000 -7757 -7000 -7757 -7000 -7757 -7000 -7757 -7800 -7757 | 27.2 | 200 | 202. | .5000 | | 500 | | 20 | 576- | 500 | 171 |
| -7181 -5800 -1752 -6200 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -5800 -1776 -1776 -5800 -1776 -1777 -1776 -1777 -1776 -1777 -1776 -1777 | | 275 | . 273 | .5400 | | 240 | ٠. | 24 | 203 | 540 | 143 |
| | | 200 | 246. | .5800 | | 580 | ٠. | 58 | 173 | 580 | 1128 |
| 001322 .7001552 .66001561 .66001187 .66001156 .70001156 .70001156 .70001156 .70001156 .70001156 .70001156 .70001156 .70001156 .70001156 .70001156 .72001156 .72001156 .72001156 .72001156 .72001156 .72001156 .72001156 .72001156 .72001156 .72001156 .72001157 .86001157 .8600 .1157 . | 812 0 | 450 | . 203 | . 4200 | ٠. | .6200 | ۲. | 62 | 135 | 620 | 075 |
| 001322 .7001472 .70001786 .70001160 .70000914 .7000 .00 1265 .74000528 .7400 1265 .74000528 .7400 1265 .74000528 .7400 1265 .74000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .78000480 .0024 .8600 .0034 .8600 .0034 .8600 .0034 .8600 .0034 .8600 .0034 .7800 1222 .22000 .0042 .2000 .0545 .2000 .0045 .2000 1222 .2000 1222 .2000 1222 .2000 12222 1222 12222 12222 12222 12222 | | 440 | 175 | . 6400 | 1. | . 6600 | ٣. | 0099. | 115 | 660 | 870 |
| 001265 .74001156 .74000962 .74000796 .74000528 .7400 000893 .74000893 .74000480 .78000324 .7800 000893 .78000476 .82000123 .82000123 .82000123 .8200 000124 .86000124 .86000124 .86000125 .9000 .0752 .9000 .0752 .9000 | 251- 00 | 2007 | 27. | .7000 | 478 | 700 | ٠. | .7000 | 60 | 700 | 20 |
| 780 - 787 | 961 - 00 | 140 | .115 | .7400 | 260. | 074 | ٠. | .7400 | 05 | .7400 | 0050 |
| . 8200 | 00 - 00 | 700 | . 183 | .7800 | . 166 | .7800 | - | .7800 | 03 | .7800 | 00 |
| 00 0197 . 8600 0058 . 8600 . 0047 . 8600 . 0534 . 8600 . 0534 . 9600 . 0534 . 9600 . 0545 . 9000 . 90 | 650 - 60 | 820 | 170. | .8200 | .030 | .8200 | - | .8200 | 00. | .8200 | 770 |
| 006; C\$70, 0009. 8450, 0009. 8540, 0009. 5250, 0009. 8450, 00 | 00 010 | 048 | 200. | . 8400 | 200 | .8400 | C | .8600 | 50. | .8600 | 1070. |
| 2000 | 760. 00 | 000 | 32 | 0006. | 042 | 0006. | C | 06 | .07 | . 9000 | 600 |
| 6520 0076 2890 0076 2890 0076 | 590. 00 | v76 | 00 | 0076 | 275 | | | 76 | 1 | | |

444WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW

18

| FTA B | | | | | CHABEAN | | | | 010 | | | |
|--|----|------|-------|------|---------|-------|------|---------|-------|--------|-------|-----|
| XYC | 11 | 30 | • | 044. | 4 | .600 | 4 | .750 | • | .85 | • | ÷. |
| ## 1900 | | t | - | | • | 45 | - | | X/C | 3 | x/c | 3 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | | 1.50 | 970 | 060. | 070 | 101. | 970 | 112 | ~ | 12 | ^ |) |
| 100 | | .117 | 0 4 8 | 950 | 250 | 020 | 8 50 | 500 | 20 | 640 | 0 | |
| 2077 | | | 200 | 166 | 650 | 150 | | | 20 | | 50 | |
| 1,000 | | 24 | 550 | 231 | 550 | 207 | 50 | 197 | 20 | - | 50 | |
| 1,000 | | .29 | 450 | 300 | 450 | .275 | 450 | .262 | 50 | .240 | 20 | |
| 1,000 | | .34 | 350 | 315 | 350 | .295 | 350 | .287 | 20 | .269 | 20 | |
| 2414 | | .30 | 250 | .280 | 260 | .281 | 260 | .269 | 60 | .268 | 8 | |
| 1000 | | .28 | 140 | 301 | 140 | .287 | 140 | .275 | 140 | .281 | 0 | |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | | .3 | | | 072 | .307 | 075 | .298 | 075 | .292 | 075 | • |
| 1, | | 77. | 07 | .458 | 070 | .432 | 070 | 007. | 070 | 399 | 040 | ٠. |
| 100 | | . 56 | 022 | .533 | 025 | . 508 | 025 | .472 | 025 | 419 | 025 | |
| 0556 0100 - 6525 01000 - 6527 0100 - 6517 | | 5 | 000 | 123 | 200 | 140 | 00 | 120 | 000 | 182 | 0 | |
| 1000 | | 82 | 000 | .825 | 000 | .823 | 000 | 251 | 000 | 825 | 8 | |
| 2722 | | 0. | 010 | .061 | 010 | .095 | 010 | .026 | 010 | 124 | 010 | |
| 2752 | | 62 | 030 | 457 | 030 | 454 | 030 | 0000 | 0 2 0 | 519 | 000 | • |
| 1000 | | 200 | 2 6 | 7 | 2 6 | | | | 200 | 2 6 | 200 | |
| 2569 - 1800 - 2079 - 1800 - 2085 - 1800 - 2087 - 1800 - 2088 - 2200 - 2087 - 1800 - 2088 - 2200 - 2087 - 2087 - 2087 - 2088 - 2200 - 2200 - 22 | | ,,, | 000 | 000 | | 200 | 200 | 000 | | | | |
| 1800 | | 27 | 140 | 296 | 140 | 292 | 140 | 296 | 140 | 305 | 9 | |
| 3068 | | 29 | 180 | 307 | 180 | 286 | 180 | 303 | 180 | 294 | 180 | |
| 3319 3400 -3117 3500 -2830 3500 -3023 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2963 3500 -2977 3500 -2972 3500 -2972 3500 -2972 3500 -2972 3600 -2972 3600 -2772 3600 -2972 3600 -2972 3600 -2972 3600 -2972 3600 -2972 3600 -2972 3600 -2972 3600 -2972 3600 -1147 3600 -1147 3600 -1147 3600 -0972 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0982 3600 -0983 | | .30 | 220 | 313 | 220 | .293 | 220 | .308 | 220 | 310 | 220 | ~ |
| 3110 3000 - 3107 | | .30 | 260 | .311 | 260 | .287 | 260 | .305 | 260 | .278 | 260 | ۳. |
| 3141 3400 - 3100 - 2956 | | | 300 | .310 | 300 | .283 | 300 | .302 | 300 | \$ 500 | 300 | ~ |
| 3326 - 2977 - 3990 - 2967 - 2977 - 3800 - 2978 - 3800 - 2978 - 2978 - 2980 - 2978 - 29 | | .31 | 340 | 310 | 340 | . 595 | 340 | .301 | 340 | 162. | 340 | |
| 2026 | | £. | 380 | 319 | 380 | .296 | 380 | .297 | 380 | 292 | 380 | |
| 2504 | | 55. | 420 | 503 | 420 | 277 | 025 | . 291 | 620 | 22. | 24 | ٠. |
| 2477 5400 - 2193 5400 - 1896 5400 - 1899 5 | | 000 | 000 | 0470 | 0 0 | 2007 | 0 0 | 620 | 0 0 | | | . • |
| 2757 | | 200 | 200 | 707 | | 200 | | | | 200 | 2 2 2 | . • |
| 2150 | | ,,, | 3 0 | 217 | 2 0 0 | - 2 | 3 6 | - 2 - 2 | 1 0 | 146 | 580 | |
| 1452 .7600 -11641 .7000 -11343 .6600 -11343 .6600 -1147 .6600 -1147 .7000 -114 | | 21 | 620 | 185 | 620 | 791 | 620 | 169 | 620 | 131 | 620 | . 0 |
| 1452 .70001455 .70001210 .70000822 .74000570 .76000848 .70000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .74000848 .7400 .7400 .7 | | | 460 | 166 | 660 | , | 660 | 134 | 660 | 114 | 999 | 0 |
| 1543 .74000570 .74000822 .74000570 .74000570 .74000570 .74000570 .74000570 .74000550 .74000550 .74000553 .74000568 .7400055305530 | | 145 | 200 | 145 | 200 | 121 | 200 | 115 | 100 | 760 | 200 | |
| 1018 78000962 78000696 78000535 78000409 7800 .00496 82000648 82000648 8200 .0646 | | 134 | 740 | 121 | 240 | 160. | 740 | .082 | 140 | .057 | 9 | |
| 0853 ,8200 -,0468 ,8200 -,0423 ,8200 -,0251 ,8200 -,0076 ,8200 ,0496 ,8400 -,0241 ,8400 -,0062 ,8600 ,0060 ,8600 ,0228 ,8600 ,0094 ,9000 ,0120 ,9000 ,0277 ,9000 ,0407 ,9000 ,0655 ,9000 ,0788 ,9400 ,0515 ,9400 ,0694 | | 101 | 780 | 960. | 780 | .069 | 780 | .053 | 780 | 040. | 9 | 0 |
| 0496 .84000241 .86000062 .8600 .0060 .8600 .0228 .8600 .0 0094 .9000 .0120 .9000 .0277 .9000 .0407 .9000 .0655 .9000 .0 0788 .9400 .0515 .9400 .0694 .0694 | | 085 | 820 | .066 | 020 | .042 | 820 | 025 | 820 | 200 | 20 | 0 |
| 00094 . 9000 . 0120 . 9000 . 0277 . 9000 . 0407 . 9000 . 0400 . 0512 . 9000 . 0 | | 670 | 840 | .024 | 860 | 900. | 860 | 900 | 860 | 025 | 9 | 0 |
| 00, 00,00, 00,00, 00,00, 00,00, 00,00, 00,00, | | 600 | 000 | 012 | 006 | 027 | 6 | 040 | 000 | 246 | C | C |
| | | | | | | | 3 | | 3 | 000 | 2 | • |

| SZMA | |
|-----------------|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| M 7.0 H | |
| | |
| _ | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 0000 | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 0 | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 744 | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| _ | |
| | |
| | |
| | |
| - | |
| = | |
| = | |
| = | |
| 3 | |
| 3 | |
| 9273 | |
| 3 | |
| 3 | |
| 3 | |
| 4 | |
| EP WIN | |
| EP WIN | |
| EEP WIN | |
| EEP WIN | |
| VEED WIN | |
| VIR ABAR | |
| NEEP WIN | |
| SWEEP WIN | |
| SWEEP WIN | |
| SWEEP WIN | |
| SWEEP | |
| TABLE SWEEP WIN | |

| | 0056. | 4 | C | | 90 | 950 | DAG. | 140 | .200 | | 223 | 146. | 177 | .110 | 303 | 776 | 556 | 193 | 26 | 205 | 567 | 947 | 227 | 101 | 348 | 340 | 700 | 220 | . 243 | . 212 | 1734 | .145 | .111 | .073 | .042 | 100. | 002 | 940 | 150 | 8220. | 400 | | |
|------------|---------|-----|------|------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|----|
| | ETA = | x/c | 8500 | - | 50 | 50 | 50 | 50 | 20 | 60 | 140 | 075 | 07 | 025 | 100 | 00 | 010 | 030 | 20 | 075 | 100 | 07 | 80 | 220 | 560 | 300 | 07 | 380 | 20 | 90 | 00 | 240 | 80 | 50 | 60 | 00 | 07 | 80 | 20 | .8600 | 00 | | |
| | .8500 | ۵ | 1105 | 2 | 0364 | C | ۲. | | ~ | ۳. | - | c. | - | | -3 | - | 7. | °. | 9500 | ٣. | 3 | 7. | 7. | 7. | w. | ~ | 3466 | ~ | ~ | • | 242R | _ | - | - | - | - | C | c. | C | C | 082 | 2 | |
| | ETA = | X/C | 9700 | 2 | .7500 | .6500 | .5500 | .4500 | .3500 | .2600 | .1400 | .0750 | .0400 | .0220 | 0200. | .0000 | .0100 | 0300 | 050 | 0520. | 100 | .1400 | .1800 | .2200 | .2600 | .3000 | .3400 | .3800 | .4200 | 0097. | .5000 | .5400 | .5800 | .6200 | .6600 | .7000 | 2400 | .7800 | .8200 | .8600 | 0006. | 0076. | |
| MO= | 0052. | 92 | 101 | 200 | 0443 | | 175 | .214 | . 215 | 1819 | 131 | 060. | 8 | .071 | 20 | 34 | 219 | 070. | 61 | 107. | 8 7 | 177. | .435 | 419 | .401 | .383 | 369 | . 353 | 334 | . 293 | 275 | . 232 | . 203 | .175 | 135 | .112 | .077 | .043 | 110. | .n218 | 058 | | |
| 03010.3 | ETA = | X/C | 010 | 2 | 7500 | | - | - | - | - | - | 10 | - | | - | - | 0 | 0 | 0 | - | - | - | - | - | - | - | - | | - | - | - | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | .8400 | - | | |
| DEG ALPHAN | 0009. | ور | 200 | 000 | 8 × 5 C - 1 | . 115 | 180 | 916. | 100. | 479 | 43R | 260. | | 760. | 917 | 190 | 4 | 786. | . 011 | 375. | 957. | 627. | .415 | .410 | 162. | 7 | 777. | 192. | 712. | 714 | 786 | 976. | . 213 | 180 | .150 | .174 | \$60. | . n63 | 050. | 1200. | 043 | 00 | |
| | ETA = | x/c | 0 | | 7500 | 50 | 50 | 50 | 20 | 00 | 0 5 | 52 | 070 | 23 | 10 | 00 | 010 | 30 | 050 | 976 | 100 | 0 | 0 | 220 | 20 | 300 | 5 | 80 | 20 | 20 | 00 | 0 | 0 | 20 | 60 | 700 | 0 5 | 0 | 20 | 69 | 0 | 40 | |
| | 00 > 7. | d | 720 | 120 | 2000 | 143 | 197 | . 135 | .230 | 198 | .153 | | .130 | 12 | 20 | - | 432 | 29 | | . 175 | 797. | 777. | .450 | .432 | .415 | \$62. | . 189 | . 488 | 192. | 172. | 0 | .267 | 276. | . 203 | .173 | 67. | 117 | . 186 | 151 | .038 | 30 | . 1711 | |
| | FTA : | 3/X | - | | 7500 | 650 | C | 0 | 450 | 240 | 07 | | 5 | 25 | 7 | 00 | 0 | 20 | 0 | 12 | 0 | 27 | C | 2 | 00 | C | 5 | 0 | 0 | 0 4 | 0 | 0 | 0 | 2 | 4 | C | 07 | 00 | 20 | 00 | C | 0076 | |
| | 0005. | 0 | 0 | | | .163 | 201 | . 234 | 225 | 100 | .143 | | .123 | 526 | 107 | 202 | 428 | 380 | .726 | \$92. | .422 | 167. | 167. | 421 | .410 | 707. | 308 | 205. | 300 | 159 | - 1353 | .285 | . 250 | .232 | | .154 | 125 | . no7 | 694. | 1.0201 | 4.0 | 150 | |
| | ETA = | 3/x | | 0000 | - | 50 | 0 | 50 | 4 | 60 | 140 | 75 | 07 | 2 | 1 | 0 | 010 | 30 | 050 | 520 | C | 140 | Ca | 20 | 260 | 000 | 07 | Ca | 20 | 6 | 5000 | 07 | C. | 20 | | 00 | 47 | 0.0 | 2 | .8400 | C | 07 | |
| | | | 15 | | | | | 0 | 0) | | 9 | 2 | , | m | 2 | - | 27 | 1,1 | 07 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 02 | 56 | 58 | 27 | 92 | 25 | 72 | 23 | 22 | 21 | 20 | 6. | 3. | 11 | 7. |

| | | | | | LAMRDA=30 | ETNOLDS NUM .DEG ALPHA | BER = 250 = 4.030F | 00000. G MO= . / / y | 20 > | | | |
|---|-----|-------|------|-------|-----------|---------------------------|-----------------------|-------------------------|-------|-------|-----|------|
| | - | .30 | - | 054. | - | . 600 | - | .750 | - | .850 | | • |
| | | t | - | 8 | | | - | | - | 3 | - | 92 |
| 1,000 1,00 | 850 | .018 | 026 | .065 | 970 | 140 | 970 | 640 | 2 | 2 | 2 | .036 |
| 1000 | 20 | .084 | 850 | .023 | 8 5 0 | 600. | 850 | 900. | | ; | | |
| 1,000 | | | 750 | .051 | 150 | 070. | 750 | .041 | 20 | .031 | 0 | 700. |
| 1989 | 20 | .110 | 650 | .115 | 650 | \$60. | | | 20 | .093 | 0 | .057 |
| 1985 | 550 | 174 | 550 | 771. | 250 | .131 | 20 | .134 | 20 | .139 | 0 | ,112 |
| | 450 | 160 | 450 | .167 | 450 | .155 | 450 | .158 | 450 | .169 | 720 | .165 |
| 1,000 | 350 | 139 | 350 | .146 | 350 | .125 | 350 | .142 | 350 | .158 | 350 | .202 |
| 1,000 | 260 | 980 | 260 | .095 | 260 | .083 | 260 | .090 | 260 | 101 | 260 | 195 |
| 0.000 | 140 | 011 | 140 | .017 | 140 | .005 | 140 | 700. | 076 | .021 | 140 | 121. |
| 1989 1984 | 075 | 990 | | | 075 | 077 | 075 | 075 | 075 | 965 | 075 | .028 |
| 7117 | 070 | 108 | 070 | 109 | 040 | 120 | 040 | 134 | 070 | 113 | 070 | 015 |
| 7447 | 021 | 155 | 023 | 178 | 022 | 101 | 022 | 201 | 022 | 204 | 022 | 120 |
| 1 | 100 | 000 | 100 | 61.0 | 100 | 474 | 100 | 430 | 200 | 627 | 200 | 552 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 000 | 711 | 000 | 7 4 4 | 000 | 495 | 000 | 197 | 000 | 683 | 000 | 693 |
| 1 | , , | 7.6 | 010 | 710 | | 273 | 000 | 000 | 010 | 813 | 010 | 787 |
| 1 | 200 | 427 | 0 % | 187 | 200 | 7 80 | 0 40 | 4 80 | 0 4 0 | 111 | 030 | 510 |
| 1 | 000 | 330 | 0 20 | 707-1 | 000 | 421 | 050 | 627 | 050 | 445 | 050 | 387 |
| 1000 | 075 | 1.272 | 075 | 1.305 | 075 | 306 | 075 | 329 | 075 | 339 | 075 | 349 |
| 1400 | 100 | 1.198 | 100 | 1.272 | 100 | 278 | 100 | 182 | 100 | 287 | 100 | 208 |
| 1800 | 140 | 510 | 140 | 705 | 140 | 930 | 140 | 903 | 140 | 816 | 140 | 535 |
| 2200 - 5511 | 180 | .552 | 180 | 486 | 180 | 434 | 180 | 452 | 180 | 382 | 180 | 336 |
| 2600 - 5511 | 220 | 562 | 220 | 505 | 220 | 432 | 220 | 428 | 220 | 397 | 220 | 345 |
| 3000 - 5720 3400 - 6466 3400 - 6468 3400 - 6460 3400 - 6468 3400 - 6468 3400 - 6460 3400 - 6468 3400 - 6460 3400 | 260 | 155. | 240 | 497 | 260 | 643 | 260 | 433 | 260 | 367 | 260 | 361 |
| 3400 - 4564 | 300 | 552 | 300 | 477 | 300 | 430 | 300 | 421 | 300 | 373 | 300 | 324 |
| 3800 - 4869 | 340 | .504 | 340 | .462 | 240 | 432 | 340 | 406 | 340 | 360 | 340 | 533 |
| 4200 - 4247 | 380 | .486 | 380 | 456 | 380 | 717 | 380 | 387 | 380 | 346 | 380 | 28 |
| 5000 - 3589 | 450 | 199. | 420 | 817. | 750 | 380 | 750 | 362 | 450 | 316 | 450 | 247 |
| 5500 - 3889 | 097 | 767. | 440 | 390 | 450 | 353 | 097 | 316 | 097 | 288 | 097 | 213 |
| 5800 - 2958 | 200 | 388 | 200 | .342 | 200 | 316 | 200 | 293 | 200 | 248 | 200 | 173 |
| 5800 - 2558 | 240 | 350 | 240 | 305 | 240 | 272 | 240 | 546 | 240 | 500 | 240 | 94 |
| 6200 - 22604 | 580 | .293 | 280 | . 269 | 280 | 234 | 580 | ,212 | 280 | 174 | 280 | 113 |
| 7000 - 1754 | 620 | .260 | 620 | 222 | 950 | 199 | 950 | 186 | 620 | 136 | 950 | 040 |
| 7000 - 1754 | | | 940 | 192 | 960 | 165 | 699 | 142 | 999 | 114 | 999 | 050 |
| 7400 - 1435 | 200 | .173 | 100 | 141 | 100 | 134 | 00 | 118 | 100 | 089 | 200 | 030 |
| 78001031 78000916 78000701 78000463 78000284 7800 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 240 | .143 | 240 | 126 | 140 | 103 | 000 | 010 | 740 | 020 | 240 | 000 |
| 8200 - 0498 8200 - 0533 8200 - 0350 8200 - 0136 8200 0060 8200 0 8000 0 | 780 | 103 | 780 | 1001 | 780 | 010 | 8 | 940 | 8 | 0 2 8 | 0 | 013 |
| 0, 0860 - 0263 , 8600 - 0098 , 8600 , 0194 , 8600 - 0387 , 8600 , 0900 , | 820 | .049 | 820 | .053 | 820 | 035 | 20 | 013 | 820 | 900 | 0 | 043 |
| 1. 0009. 8470. 0049. 8420. 0009. 8480. 0009. 8480. 0049. 004 | 860 | .026 | 860 | 600 | 398 | 900 | 9 | 010 | 860 | 038 | 0 | 690 |
| 2076 076 076 076 076 076 076 | 006 | 010 | 000 | 029 | 000 | 0 70 | 00 | 956 | 00 | 079 | 0 | 101 |
| | 0 | | | | | | | | | | | |

| ### ### ### ### ### ### ### ### ### ## |
|---|
| XXX X X X X X X X X X X X X X X X X X |
| \$888 |
| 0000 |
| ###################################### |
| \$838 |
| ###################################### |
| New |
| 100 |
| NOTE CONTRICT CO |
| 23 |
| 0030 |
| 257 268 271 271 271 271 271 271 271 271 |
| 71 |
| 25 |
| 0000 |
| 7.9000 7.900 7.900 7.900 7.900 7.900 7.900 7.900 7.900 7.9000 7.9 |
| 46 |
| 1400 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| 74 |
| 337 337 338 3400 3457 3400 345 |
| 33 |
| 53 |
| 255 |
| 74 |
| 55 |
| 88 24 24 24 25 26 27 27 27 27 27 27 27 27 27 27 |
| 24 |
| 29 |
| 24 |
| 29 |
| 29 |
| 755 - 6000 - 1561 - 6000 - 755 |
| 75 - 0007 - 1407 - 0007 - 57 78 - 700 - 0087 - 0087 - 0087 - 0087 - 0087 - 0087 - 0087 - 0087 - 0088 - 008 |
| 78 |
| 18 7800 - 0833 . 7800 - 063 |
| 150 - 000g CC50 - 000g. |
| 10000 |
| 500° |
| 950. 0006. 8420. 0006: 75 |
| 290. 0076. 29 |

| | | | 0.46 | KA VAKIABLE | NTB GALES | NG : AFV D | CORD = 0 | F 7. | SZMA WIND | TUNNEL | | TABI |
|-----|-------|---------|-------|-------------|-----------|-------------|-----------|--------------------|-----------|--------|--------|---------|
| | | | | | LAWADA#50 | EYNOLDS NUM | BER # 250 | 0000. 8 MO= . 8 | 898 | | | |
| | 4 1 3 | 000s. = | - TA | 00000 = | ETA : | 0006. = | ETA | 0052. = | ETA | . 8500 | ETA | 0056. = |
| | X/C | ž | */* | 2 | x/c | a D | x/c | <u>a</u> | x/c | 3 | X/C | 9 |
| 2. | DOCK. | 6970 | 20 | . 3562 | 2 | 140. | 2 | 640 | 0079. | .1143 | . 8500 | .046 |
| 13 | 250 | , JUC. | 20 | 150. | 20 | .055 | . 8500 | | - | | 5 | |
| | | | | 0.660 | 0054 | 0753 | 20 | 90 | 0057. | 200. | 0067. | .000 |
| | 000 | 1 2 2 | , , | 27.6 | 2 0 | 9 6 6 | - | 222 | 2 0 | 200 | 2 6 | - |
| | 0057 | 2798 | | 284 | 200 | 263 | 0007 | - 2656 | 200 | a v | 200 | 25 |
| | 350 | 275 | 0 | 281 | 20 | 263 | 0 | 266 | 50 | 282 | 20 | 31 |
| | 0 | 229 | 4 | 239 | 09 | 223 | 0 | 22 | 00 | 224 | 00 | .33 |
| • | 140 | 146 | 140 | 184 | 40 | 167 | 0 | 164 | 140 | 176 | 140 | 2. |
| ~ | 0 | .123 | | | 2 | | 5 | ,116 | 2 | 71. | 2 | . 7 |
| 7 | 040 | 151 | 0 5 | • | 07 | .143 | 0 | 117 | 070 | .133 | 040 | .21 |
| | 120 | 174 | 23 | ,14 | 25 | .126 | 0 | 104. | 022 | .080 | 025 | ٠. |
| • | 200 | 105. | 0 | 7 | 10 | 755 | ~ | 627 | 200 | 977 | 000 | 38 |
| | 0 | 10 | 000 | 8 | 00 | 13 | 0 | 40 | 000 | .803 | 00 | 8 |
| 4.3 | 010 | \$05. | 010 | .30 | 10 | 122. | 0 | .200 | 010 | .373 | 010 | . 38 |
| 6.3 | - | 026. | 0 3 0 | .0. | 30 | .051 | 0 | 290. | 30 | .059 | 20 | .12 |
| 4.7 | 080 | SON. | 0 20 | 88. | 20 | . 950 | 0 | 000. | 0 2 0 | .021 | 020 | .04 |
| 43 | 075 | 259. | 920 | . 82 | 22 | . 861 | 2 | 884 | 075 | 206 | 075 | . 93 |
| a | 100 | 305 | 100 | 04. | 0 | .754 | 0 | 845 | 0 | 838 | 0 | 85 |
| 17 | 140 | 157. | 1 | 4. | 0 1 | 432 | 0 | 334 | 0 | 363 | 9 | . 55 |
| 72 | - | 445 | 2 | .5 | 0 | . 503 | 0 | 476 | 180 | 456 | 8 | 43 |
| 45 | | 475 | 220 | ~ • | 0 | 483 | 0 | 50 | 200 | 107 | 240 | . 37 |
| " | -, - | 200 | | | 0 0 | 755 | 00 | 777 | 000 | ** | 0 0 | 244 |
| 33 | 200 | . x . x | 3 | 5 | 9 0 | 2 4 7 |) C | 227 | 9 0 | 007 | 340 | 36 |
| | | 2 | 300 | 77 | 0 | - 4190 | 0 | 415 | 0 | 383 | 8 | 312 |
| 4. | - | .564 | 2 | 6.7 | 0 | 395 | 0 | 385 | 20 | 343 | 20 | .25 |
| 00 | 0 | .519 | 440 | .39 | 20 | .352 | 0 | .329 | 60 | 305 | 00 | .21 |
| 3.0 | 200 | 403 | 200 | .34 | 00 | 325 | 0 | 308 | 200 | 260 | 200 | 173 |
| 22 | 240 | 345 | 240 | .30 | 0 7 | .276 | 0 | .254 | 07 | 212 | 240 | 143 |
| 76 | 280 | .301 | 200 | . 24 | 80 | .235 | 0 | .218 | 580 | 178 | 0 | 108 |
| 25 | - | . 249 | 220 | 01 | 20 | .199 | 0 | 187 | 20 | 139 | 20 | .0. |
| 76 | | | 079 | | 20 | .166 | 0 | .146 | 09 | 115 | 20 | .041 |
| 26 | 00 | 180 | 100 | .16 | 00 | 135 | 0 | .118 | 00 | .088 | 00 | 610 |
| 22 | 0 5 | 140 | 177 | - | 0 7 | .103 | 0 | .080 | 0 7 | 048 | 0 | 0 |
| | 80 | 11, | 000 | .03 | 0 | .058 | 0 | 990. | 80 | .024 | 80 | 00 |
| 50 | 20 | 0 9 5 | 2 | .05 | 20 | .025 | 0 | 110. | 20 | 011 | 50 | 24 |
| 40 | 0 | 740 | 260 | .01 | 20 | 5 | 0 | 075 | 9 | 5 | 0 | D) |
| • | 0000 | 7700. | | 2 | 00 | 43 | 0 | 23 | 00 | 90 | 0 | 2 |
| | 0 7 | 270 | 0076. | 0880 | 0 | 83 | , | | 0 | 2 | | |
| * | | | Ca | C | | | . 9800 | .1356 | 80 | 151 | | |

| | | | 20 | XX . 4X . 4X | OM C C | | 1 | | 0111 | 7 | | TABL |
|------------|-------|--------|-------|--------------|-----------|-------------|-----------------------|---------------------|-------|-------|-------|---------|
| | | | | | LAMBDA=30 | EYNOLDS NUM | BER = 250 = 4.020E | 0000. G MO= .842 | ٤. | | | |
| | ETA | .3000 | FTA | 0057. = | ETA | 0009. = | ETA | 0052. = | ETA : | 8500 | ETA | 0056. = |
| | X/C | 90 | J'X | d D | 3/x | G D | 3/X | d J | X/C | ą. | X/C | • |
| 2 7 | 50 | .043 | 0 | 62 | 0 | 90 | 0 | 26 | 0026. | 1304 | .8500 | 2770. |
| 13 | .7500 | - | 8500 | -, 4353 | .8500 | 0109 | .8500 | | | | | |
| 15 | | | C | 290 | 0 | 62 | 20 | 133 | 20 | 0423 | .7500 | |
| = | .6500 | -,1525 | 0 | 145 | C | 114 | | | 20 | 123 | 20 | • |
| 10 | - | 101 | C | 420 | - | .158 | | .166 | 20 | 181 | 20 | ٠. |
| ٥ | - | 102. | 057 | . 208 | C | .190 | | 196 | 50 | .210 | 20 | •• |
| 6 0 | 0 | 180 | 350 | 186 | C | 157 | | 179 | 350 | 206. | 350 | |
| ~ | 0 | 23 | 0 | 131 | 260 | .115 | | 13 | 260 | .142 | 09 | |
| • | 0 | .037 | 0 | 770. | C | . 132 | | .032 | 140 | .051 | 67 | ٠. |
| 2 | - | 070 | | | 075 | 17 | | 770 | 075 | 134 | 075 | - |
| 7 | 070 | 590 | 0 | 2090. | C | 077 | | 093 | 040 | 073 | 07 | - |
| ~ | 021 | 860 | N | .1204 | ~ | 136 | | 150 | 022 | 157 | 022 | 1 |
| 2 | 200 | 547 | ~ | 585 | 200 | 294 | | 00 | 007 | 600 | 200 | |
| - | 000 | 769 | - | 771 | C | 755 | | 214 | 0 | 737 | 000 | |
| 75 | 010 | 493 | 0 | 687. | C | 275. | | 787 | 010 | . 595 | 010 | -: |
| 1.7 | 030 | 170 | 0 | 205 | 030 | 200 | | . 218 | 30 | .214 | 30 | |
| 07 | 050 | 146 | | 182 | 0 | 175 | | 201 | 050 | .213 | 050 | ٠. |
| 39 | - | .063 | - | 115 | 1 | 120 | | 157 | 75 | 159 | 75 | ٠. |
| 38 | 100 | \$66 | 0 | -1.n778 | 0 | -1. n829 | | 115 | 100 | 124 | 100 | -1.1341 |
| 37 | 140 | 920 | 0 | 120. | - | .038 | | 073 | 140 | .086 | 69 | ٠. |
| 36 | 180 | 675 | C | 983 | 0 | 800. | | 043 | 180 | .057 | 180 | ٠. |
| 35 | - | 573 | 0 | 037 | C | 060. | | 032 | 20 | 040. | 20 | C |
| 34 | - | 1677 | • | 68× | - | .978 | | 010 | 260 | 666. | 260 | |
| 33 | - | 636 | 0 | . 487 | C | 60 | | 716 | 00 | .962 | 00 | ۲. |
| 32 | 340 | 654. | 340 | . 465 | - | . 935 | | 928 | 40 | .705 | 340 | |
| 31 | - | 10 | 0 | 722 | C | 751 | .3800 | 5543 | 80 | 572 | .3800 | ٠. |
| 30 | - | .720 | C | .762 | C | 305. | | 250 | 20 | 199 | 20 | ٠. |
| 58 | 0 | 202. | | 177. | 0 | .260 | | 190 | 60 | 168 | 9 | ٠. |
| 28 | 0 | . 77. | 200 | 762 | 0 | 676. | | 100 | 00 | 143 | 200 | ٠. |
| 27 | - | 678 | 0 | .274 | - | . 222 | | 175 | 07 | .117 | 40 | ٠. |
| 56 | 280 | 047. | 280 | .234 | - | .199 | | 161 | 8 | 100 | 580 | |
| 52 | - | 966. | 0 | 000. | 0 | .172 | | 177 | 20 | .089 | 20 | ٠. |
| 54 | | | 0 | 1689 | C | 141 | | 108 | 60 | .078 | 9 | 0188 |
| 23 | 00 | .176 | 100 | 141 | 0 | .11 | | 089 | 00 | 190 | 00 | ٠. |
| 22 | 43 | 140 | C | 400 | C | .082 | | 057 | 40 | .029 | 07 | .0013 |
| 21 | 0 | 800 | 0 | .075 | C | .050 | | 027 | 80 | | 80 | .0243 |
| 20 | 820 | 590. | 0 | 020 | - | .018 | | 000 | 2 | 40 | 820 | 0670. |
| 10 | 64 | 20. | - | 000 | 0 | 050 | | 031 | 09 | 170 | 60 | .0762 |
| 00 | 0006. | .0131 | 0006. | . n378 | C | .0586 | | 990 | 0006. | 160 | 00 | .1079 |
| 11 | 07 | 70 | 0 | 220 | C | 07 | | | 07 | .1169 | | |
| 16 | | | 0 | 7704. | | | .9800 | .1502 | 8 | ~ | | |
| | | | | | | | | | | | | |

| ### ### ### ### ### ### ### ### ### ## | | | | 20 | TRE VARIABL | LE SKEEP WIN | NG : AFV D EYNOLOS NUMI .DEG ALDUA: | CORD = 0 BER = 250 = 4.020E | .2 m 0000. 6 m0= .881 | S2MA WIND | ONNEL | | TABL |
|--|--------------|------|----------|--------|-------------|--------------|---|-----------------------------------|-----------------------------|-----------|--------|-------|-------|
| | | ETA | .300 | FTA | * | FTA | . 600 | FTA | 054. = | A | .850 | 4 | .950 |
| Color | | - | | - | 9 | - | 6 | - | | | £ | x/c | 6 |
| No. | | 50 | 1115 | 20 | 0 | 0026. | 20 | 10 | 136 | 20 | .1449 | 50 | .0468 |
| 1971 1971 1972 | | 0 | \$9. | 0 | 52 | 2820 | . 133 | 20 | 000 | | | | ; |
| Color | | 5 | • | C (| 10 | 0057. | . 165 | 20 | .055 | 0 | . 055 | 0 0 | 210. |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | | 0 0 | | | - 1 | 0000 | 10 | . 5500 | 202 | - 0 | 227 | 2 | 101 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | | 2 | | 20 | 9 | 4500 | 233 | .4500 | 236 | - | . 267 | 20 | 356 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 00 | 5 | ٠. | C | 9 | .3500 | 211 | .3500 | 216 | C | 242 | 350 | 349 |
| 1,000 | ~ | 60 | ۲. | 4 | 53 | .2600 | .150 | .2600 | .150 | - | .140 | 260 | .297 |
| 1000 | • | 07 | | 07 | 7 | .1400 | . 063 | .1400 | . 162 | C | .076 | 140 | 110 |
| 1000 | 2 | 75 | C | | | 0526. | 111 | 0520. | 115 | 5 | 900 | 2 | .046 |
| 1000 | , | 07 | C | - | . 178 | 0050. | 660 | 0070. | 052 | - | 250 | 040 | 150. |
| 2 | m | 021 | • | 200 | , n724 | .0220 | 280 | 0220. | 660 | ~ | 113 | 025 | 050 |
| 1,010 | ~ | 200 | L | 200 | . 5509 | 0200. | 2 2 2 | 0200. | 266 | 200 | 240 | 200 | 5.08 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | - | 000 | 0. | | α. | 0000. | 186 | 0000. | 229 | - | 120 | 000 | 771 |
| 1,0713 | 24 | 010 | m | 010 | ۲. | .0100 | 5.7. | 010 | 273 | 010 | • | 010 | .443 |
| 1000 | 1.1 | 020 | 6. | 0 40 | ć. | .0300 | 1.052 | 030 | 053 | 030 | - | 030 | 1.117 |
| 1,000 | 04 | 0 20 | 6. | 0 20 | - | 020 | 1.028 | 0 50 | 170 | 0 2 0 | - | 0 2 0 | 1.080 |
| 1,000 | 39 | 075 | 6 | 520 | ٠. ۱ | 0750 | . 975 | 570 | 0 1 | 270 | - | 075 | 1.033 |
| 1400 | 200 | 00. | | 0 | ٠. | 0001. | 770. | 1000 | 0,0 | 001 | 1786- | 001 | 1001 |
| 1800 1885 1800 1885 1800 1885 1800 1801 1800 1801 | 37 | 140 | 00 1 | 7.0 | ٠.' | 1400 | 600. | 0071 | 276 | 140 | 9567 | 140 | . 977 |
| 1,200 | 20 | 130 | | 200 | ٠.' | . 1800 | . 886 | 0 0 0 | 120 | 0 | 1226- | 80 | . 945 |
| 2.2600 9762 9762 9762 9762 9762 9760 9942 9760 9942 9942 9940 | 35 | 220 | S | 220 | α. | 0022. | 6840 | .220 | 010 | 250 | 9326 | 220 | 156. |
| 3. 3.000 | 34 | 260 | | 240 | α. | .2400 | 8920 | .260 | 011 | 260 | 1726 - | 260 | 766. |
| 3800 -6131 -750 | 33 | 0 | S. | 0 | ۲. | .3000 | .869 | 2000 | 912 | C | 9332 | 00 | .896 |
| 1980 | 32 | 07 | | 07 | ٧. | .3400 | . 075 | 072 | 126. | C | 0026- | 340 | 8 4 8 |
| 6757 -7887 -4200 -8314 -4200 -8939 -4200 -7887 -4600 -8314 -4200 -8939 -4200 -7887 -7860 -7887 -7860 -7887 -7860 -7887 -7860 -7887 -7860 -7887 -7860 | 31 | 0 | | a m | ٠. | .3800 | . 457 | .3800 | 616 | C | 9335 | 80 | . 515 |
| \$ 50007557 5.46007455 5.6007547 5.60075507547 5.60075507 | 30 | 2 | | 62 | ٠. | .4200 | . 931 | 0027. | 893 | C | 9073 | 20 | 336 |
| \$ 5000 - 7559 | 62 | ç | 4. | 44 | ۲. | .4400 | .74. | 0097. | . 973 | C | 4967 | 60 | . 228 |
| 5800 - 58 | 28 | c | | C . | ۲. | .5000 | .744 | .5000 | 264. | 200 | 4847 | 200 | 112 |
| 5800 - 7587 | 22 | 240 | ٠. | 24 | ۲. | . 5400 | .782 | .5400 | . 489 | - | 2900 | 240 | 640. |
| \$.67094875 .67004159 .67001459 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .62000130 .6200 .0130 .6200 .0130 . | 56 | 2 | | 200 | ۲. | 5800 | . 460 | 200 | . 245 | 580 | 1594 | 580 | .028 |
| \$.70004510 .0124 .6600 .0177 .70000239 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0177 .7000 .0178 .7000 .0 | 52 | 20 | ٧. | 029 | 4 | .6200 | . 245 | 0004. | .169 | C | 0140 | 20 | .012 |
| 3 .70004510 .70007080 .70001078 .70000239 .7000 .0172 | 54 | | | 640 | ٠. | . 4600 | .179 | . 4400 | 060. | 999 | \$260. | 660 | 200 |
| 2 .74.0 | 23 | 00 | .451 | 100 | ۲. | .7000 | 101 | .7000 | . 123 | C | .0172 | 00 | 115 |
| 1 .78001763 .78001950 .7800 .0160 .7800 .0325 .7800 .0434 .7800 .050 0 .87000559 .8200 .0111 .8700 .0495 .8200 .0684 .8200 .072 9 .86000534 .86000218 .8600 .0660 .0718 .8600 .0841 .8600 .093 8 .90000574 .0059 .0400 .0460 .0600 .1001 .9000 .1304 .9000 .1324 | 25 | 6.2 | 196. | 674 | ۲. | .7400 | . 151 | .7400 | 010 | C | 7250° | 140 | 031 |
| 0 .82007248 .82000559 .8200 .0111 .8200 .0495 .8200 .0484 .8200 .072 9 .86000834 .86000218 .8600 .0404 .9600 .0101 .9000 .0861 .8600 .099 8 .9600 .0659 .0900 .0659 .9600 .1001 .900 .1401 .9000 .1304 .9000 .1304 .9000 .0500 | 21 | C | .176 | - | ٠. | .7800 | .016 | .7800 | 032 | C | 7270. | 780 | 7050. |
| 9 .86.000834 .86.000218 .86.00 .04.04 .86.00 .0718 .86.00 .0861 .86.00 .093 8 .96.00 .0059 .0000 .0660 .96.00 .0309 .96.00 .0913 .96.00 .16.01 .96.00 .0309 .96.00 .0913 .96.00 .16.94 .96.00 .0309 .96.00 .0913 .96.00 .16.94 .96.00 .0520 .96.00 .0520 .96.00 .0520 .98.00 .0520 . | 20 | 20 | .124 | C | ٠. | .8200 | 111 | . 2000 | 67 | C | 7890. | 20 | 072 |
| \$.900 . 2751. 0009. 0900. 0900. 0900. 00000. 000000 | 10 | 60 | .083 | 8400 | ٠. | .8400 | 040 | .8400 | 7 | C | .0861 | 0 | .0937 |
| 7 .94.0 02.0 .03.0 .94.0 .94.0 .94.3 .94.0 .9 | 6 0 (| 00 | 050. | 0000 | 6500. | 00000 | 68 | 0006. | 00 | C | .1205 | 00 | 1261. |
| 0080° | 11 | 2 | .020 | 0076 | .0309 | 0076 | 6 | | | C | 7481. | | |
| | 16 | | | 0066. | . 1520 | | | 00 | 69 | C | 1694. | | |

The state of the s

| ### PARADARSO DEG ALPAR - 1010 for a 1137 | | | | | MRDA=3 | DEG ALPHA | -,010 | LY. HOM | | | | |
|--|------|-------|-------|----------|--------|-----------|-------|---------|-----|-------|-------|---------|
| ### ### ############################## | | | | | | | | | | | | |
| X/C | | 2000 | < | ? | - | .600 | ~ | .750 | 4 | • | ETA | 0064. = |
| 1 | u | t | - | 8 | - | | • | 5 | - | 3 | 3/X | 85 |
| 0000 | - 00 | 131 | 970 | 086 | 970 | | 970 | 120 | 016 | 1500 | .8>00 | .0937 |
| 0000 | - 00 | 389 | 880 | .028 | 850 | 000 | 750 | 010 | ~ | 0.55 | 0 | 0 |
| 100 | - 00 | 450 | 0 2 9 | 520 | 650 | 208 | | | 65 | | 6500 | 0211 |
| 12.23 12.24 12.2 | - 00 | 463 | 550 | 571 | 550 | 613 | 20 | .571 | 55 | .370 | 550 | 16 |
| 1,200 | - 00 | 462 | 450 | .550 | 650 | .575 | 450 | , \$87 | 45 | . 593 | 450 | 19. |
| 2224 | - 00 | 382 | 350 | 877. | 350 | 473 | 350 | .484 | 35 | . 488 | 350 | . 56 |
| 1400 | - 00 | 327 | 260 | 375 | 260 | 407 | 260 | .397 | 56 | .428 | 260 | 67. |
| 1000 | - 00 | 569 | 140 | .306 | 140 | .329 | 140 | .338 | 7 1 | 344 | 9 | 4042 |
| 100 | • | 200 | | | 072 | .301 | 0 2 5 | .362 | 5 | . 501 | 2 | |
| 0 | - 00 | 797 | 0 | \$16. | 070 | . 513 | 070 | . 522 | 0 | 113 | 040 | . 54 |
| 0.05 | - 01 | 485 | 022 | 127. | 025 | 697. | 025 | .450 | 0 | 412 | 025 | 7 |
| 000 | 02 | 222 | 000 | 212 | 200 | 510 | 000 | 233 | 0 | 541 | 000 | - |
| 000 - 2547 | 00 | 862 | 000 | 854 | 000 | 847 | 000 | 261 | 00 | 678. | 000 | 86 |
| 12472 | 00 | 950 | 010 | 5 70 | 010 | .008 | 010 | .141 | 5 | 700 | 010 | 03 |
| 26.5 | 00 | 304 | 030 | .460 | 030 | .477 | 030 | . 367 | 03 | . 581 | 30 | 69. |
| 1000 | 00 | 117 | 050 | . 353 | 050 | .349 | 020 | 613. | 05 | .433 | 000 | > 506 |
| 1000 | 20 | 545 | 240 | 962. | 075 | .306 | 079 | 347 | 0 | .366 | 075 | .42 |
| 1,2665 1,400 1,3134 1,400 1,3513 1,400 1,3513 1,400 1,3513 1,400 1,3513 1,400 1,3513 1,400 1,3513 1,400 1,3513 1,400 1,3513 1,400 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,413 1,200 1,414 1,200 1, | 00 | 252 | 100 | .307 | 100 | 320 | 100 | .350 | 0 | .334 | 0 | 0 9 |
| 1 | 000 | 997 | 7 4 | 513 | 140 | . 550 | 0 4 5 | 245 | 2 (| 300 | * | |
| 1925 1926 | 000 | 0 . | 2 4 | 545 | 2 6 | 155 | 200 | 504 | 200 | . 300 | 000 | |
| 1 | 000 | 200 | 220 | 370 | 220 | 200 | 077 | | 2,5 | 200 | 2 9 | 2 |
| 13569 | 0 3 | 222 | 600 | 575 | 200 | | 000 | 600 | 0 4 | | 200 | ? |
| 1 | 0 0 | 446 | | 1376 | 2 0 | | 2 4 | 0 / | 3 % | | 340 | 2 |
| 14363 14364 14364 14364 14365 14 | 200 | 44.0 | 7 0 | 777 | | | | | | 275 | 280 | 2 |
| 00 - 4363 - 4703 - 4 | 200 | 2 4 7 | 000 | 707 | 200 | 620 | 000 | | 200 | 2 8 | 420 | |
| 00 - 4745 | 000 | 927 | V Y 7 | 532 | 7 | 556 | 460 | 585 | 4 | 627 | 9 | 68 |
| 00 - 4445 | 00 | 027 | 500 | 548 | 500 | 587 | 500 | 616 | 50 | 648 | 500 | .63 |
| 00 - 4751 | 00 | 777 | 540 | . 558 | 540 | 613 | 540 | . 537 | 54 | 679 | 240 | 22 |
| 004751 | 00 | 755 | 280 | . 566 | 580 | .614 | >80 | .628 | 28 | 340 | 80 | 5 |
| 00 - 4426 | 00 | 475 | 620 | .549 | 620 | .603 | 629 | .323 | 62 | 201 | 620 | .06 |
| 000 - 4456 .7000 - 5346 .7000 - 1186 .7000 - | | | 650 | .543 | 660 | 345 | 660 | .172 | 99 | .134 | 999 | .02 |
| 7400 - 4494 . 7400 - 1475 . 7400 - 1154 . 7400 - 0751 . 7400 - 7700 - 7722 . 7800 - 0369 . 7800 - 7800 - 0369 . 7800 - 7800 - 0369 . 7800 - 7800 - 0369 . 7800 - 7800 - 0328 . 8200 - 0369 . 8200 . 92 | - 00 | 577 | 200 | .534 | 700 | .182 | 200 | .118 | 20 | .085 | 200 | 5 |
| | - 00 | 677 | 140 | .347 | 740 | 115 | 240 | .075 | 12 | .041 | 140 | .0391 |
| 00 = 3947 | - 00 | 443 | 200 | 147 | 780 | .072 | 780 | .036 | 28 | .01 | 780 | .0613 |
| . 0009. 1700. 0009. 1100. 0008. 4600. 0008. 1011. 0000. 1011. 0000. 1011. 0000. 1011. 0000. 1011. 0000. 1011. | - 00 | 304 | 820 | .081 | 820 | .032 | 20 | .003 | 82 | 025 | 20 | .0843 |
| . 0009. 1790. 0009. 8880. 0000: 9810. 0009. 1011. 00 | - 00 | 230 | 860 | . 025 | 860 | 500 | 00 | 030 | 8 | 950 | 800 | 9801. |
| 00.00 00.00 00.00 00.00 00.00 00.00 | - 00 | 110 | 00 | 010 | 00 | 038 | 00 | 190 | 06 | 76 | 00 | .1360 |
| | - 00 | 033 | C | | 00 | 12 | | | 4 | 20 | | |
| | | | | , | | | | • | | | | |

| | | | ONE | RA VARIABLE | E SHEEP WING | NG : AFV D | CORD = 0. | 2 M | SZMA WIND | TUNNEL | | TABLE 28 |
|-------|-------|---------|-------|-------------|--------------|-------------|------------------------|-------------------|-----------|--------|--------|----------|
| | | | | | LAMBDA=50 | EYNOLDS NUM | BER = 2500 = .010EG | .000. MO= .700 | • | | | |
| | ETA | 000€. = | FTA | 0057. = | ETA : | 06000 = | FTA = | 0054. | ETA = | .8500 | ETA : | . 9500 |
| : | 3/X | ده | 3/X | d D | X/C | ٥ | 3/X | a 5 | 3/x | ون | X/C | 2 |
| 2 2 : | .8500 | 5790- | 0 | n31 | 0626. | | 20 | 150. | 0026 | .0592 | .8500 | .0252 |
| 2 2 | C | 0. | 7500 | 1,1314 | . 75.00 | 1,0132 | 0058. | 0039 | 0 | - | 50 | 0 0 |
| := | - | 115 | 029 | 160 | 6590 | | 2 | | 20 | - 0507 | 20 | 270 |
| 10 | 5500 | 5721- | S | 121 | . 5500 | | 50 | 0 | . 5500 | | . 5500 | 8780 |
| 0 | - | 155 | 057 | . 46 | .4500 | ٠. | 20 | 2 | 50 | ٠. | 50 | 2 |
| 00 | 350 | 150 | 50 | 151 | .3500 | ۲. | .3500 | 1305 | 20 | 1220 | 50 | 141 |
| 1 | 540 | 154 | 240 | .115 | .2600 | ٠. | 600 | 2 | 00 | ٠. | 260 | 147 |
| 9 | - | 140 | 140 | 67. | .1400 | ٠. | 07 | 12 | 40 | ۲. | 140 | .180 |
| ~ | 520 | .170 | | | .0750 | ٠. | 15 | 5 | 75 | ۲. | 75 | .185 |
| 4 | 070 | 752. | 07 | . 239 | 0070. | | 07 | 20 | 6 | | 07 | .237 |
| m | 024 | 702 | 2 | 291 | 0620. | | 25 | 5 | 22 | | 022 | . 254 |
| ~ . | | .020 | - | 010 | 0200. | 7500. | 2 | | 10 | .0351 | 000 | 700. |
| - : | 000 | 717 | 000 | 415 | 0000. | • | 000 | - | 60 | | 0 | 077. |
| 24 | 010 | 950. | 0 | 245 | .0100 | • | 0 | | 0 | • | 010 | 960. |
| | 0 2 0 | 521. | 2 | | 0050. | • | 0 4 0 | | 030 | | 030 | 286 |
| 0 0 | 050 | 7 | 0 10 | 25. | 0050. | | 020 | 2 | 050 | • | 020 | . 244 |
| 40 | 520 | | 570 | 200 | 0520 | • | 520 | | 075 | • | 52 | 28. |
| 9.6 | 0 | | | 000 | 9001. | ٠. ١ | 0 | 2. | C · | • | 000 | 101 |
| 34 | | 50. | 2 0 | 000 | 0031. | • | 075 | 2 | 40 | | 0 0 | 2 |
| 32 | 200 | 001 | 230 | 3 5 | 0000 | | 2 6 | | 0 0 | . ' | 0 0 | |
| 72 | - | ייי | 2 | 447 | 6692 | | 010 | - 1313 | 240 | .000 | 0 4 | 4 6 |
| 33 | 300 | 571 | 400 | 1 4 | | . • | 2 0 | | | . • | 400 | 14.5 |
| 32 | | 146 | 07 | 130 | .3400 | | 340 | 12 | 340 | | 340 | 153 |
| 31 | 380 | 147 | 380 | 14. | .3879 | ٠. | 8 | . 12 | 380 | ٠. | 380 | 145 |
| 30 | 420 | 151 | 420 | 144 | .4200 | ۲. | 065 | .12 | 420 | ٠. | 420 | 139 |
| 62 | 440 | 1776 | 047 | 128 | 0097. | ۲. | 047 | .10 | 197 | ٠. | 09 | 172 |
| 82 | 200 | . 33 | 2 | 7. | .5000 | ٠. | c | - | 0 | ۲. | 200 | 102 |
| 22 | 240 | 126 | 4 | 404 | .5410 | | 07 | 60. | 5 | ç. | 240 | .005 |
| 92 | - | .113 | 00 | 105 | .5800 | | 80 | 60. | 80 | • | 280 | .078 |
| 52 | 620 | act. | 1 | 060. | .6200 | | 20 | æ. | 20 | c. | 20 | .055 |
| 54 | | | 09 | . 78 | .6600 | ٠. | 69 | .05 | 60 | | 9 | .039 |
| 23 | 0 | .060 | 400 | 920 | .7000 | | 200 | .05 | CO | • | 00 | 7 |
| 25 | 40 | 190. | 07 | 690. | .7400 | | 07 | 70. | 0 4 | • | 07 | 017 |
| 2. | c | 750. | 00 | . 54 | .7800 | ٠. | C | .05 | 80 | 0274 | 80 | .005 |
| 50 | 2 | .054 | 2 | 043 | . 8200 | | 20 | .01 | 20 | c. | 20 | 00 |
| 4 | 860 | .043 | 40 | 2 | .8600 | ٠. | 40 | 00. | 60 | 0 | 09 | 0960. |
| æ ; | 0006. | 0403 | 0606. | 0067 | 0006. | C | 00 | - | 0006. | .0325 | 00 | 77 |
| | 40 | . 154 | 0 0 | - 1 | 0076. | \$050. | | | 9 | 2070. | | |
| 2 | | | | 2 | | | 0084. | | 0 | 2200. | | |

| | | | Ž | EDA VARIANLE | STEEP WILL | TANOLDS NUM | 25.0 | 00 | SZMA WIND | TUNNEL | | TABLE |
|-------|-------|---------|-------|--------------|------------|-------------|---------|--------|-----------|--------|-------|--------|
| | 17. | 9008° = | 1 | 0659 | ETA | 0009. = | ETA ETA | .7500 | ETA | 8500 | ETA | . 9500 |
| # | 3/X | 6 | 37X | do | XIC | a u | 3/X | d S | x/c | 43 | x/c | 9. |
| 2 2 5 | .8500 | 0756 | 0 | . 28 | 0626. | | 20 | 5 | 0026. | .0567 | .8500 | .0284 |
| 2.5 | 2 | | 0 0 | 025. | 0058. | • | . 8500 | 6700 | 5 | • | | - |
| 11 | | 070. | 2 4 | 1623 | . 6590 | 2050- | 20 | .01 | 0000 | 1710.1 | 0000 | 7620 |
| 10 | .5500 | 7201- | C | .982 | .5500 | | 5 | .062 | 20 | | 200 | 080 |
| • | | .112 | 440 | 860. | .4500 | | .4500 | 0825 | 20 | 0 | 450 | 0 |
| œ | | 106 | 350 | 660. | .3500 | • | 50 | 780 | 50 | | 350 | 172 |
| 1 | | 000. | 4 | 181 | .2600 | | 0 | .068 | 9 | - | 260 | 176 |
| • | | .067 | 07 | 190. | .1400 | `. | 7 | 040. | 0 | | 140 | .103 |
| ~ | | 524. | | | .0750 | • | 5 | .015 | 75 | ٠. | 075 | 140. |
| 4 | | 0.20 | 7 | | 0076. | | 0, | .002 | 07 | ٠. | 070 | .041 |
| ~ | | .039 | 6 | | 0620. | . 0029 | 2 | 012 | 22 | C | 22 | .016 |
| 2 | | .214 | 2 | 0072. | 0200. | | 5 | 268 | 0 | ~ | 000 | 216 |
| - | | . 7.7 | 000 | ٠. | 0666. | | 6 | 102 | 0 | | 0 | 376 |
| 45 | | | 040 | 7. | .0100 | 7. | - | 382 | 0 | -3 | 010 | 157. |
| 1.7 | | 727. | 0 2 0 | 7. | 0016. | 4690 | 0 | 067. | 30 | 7. | 30 | 533 |
| 07 | | . 163 | 000 | ٠. | .0500 | ۲. | 00 | 370 | 20 | ۳. | 050 | .430 |
| 36 | | .236 | 2 | | 0520. | | 5 | .271 | 3 | 7876- | 2 | 273 |
| 23 | | .220 | 000 | | .1000 | | 0 | .233 | 00 | ٠. | 100 | .277 |
| 37 | | 208 | 5 | | .1430 | ۲. | 0 | .214 | C | | 0 | . 238 |
| 9 1 | | 200 | C | | .1800 | ٠. | 00 | . 208 | 20 | ۳. | 180 | .224 |
| 35 | | . 211 | 5 | ۲. | 0626. | ٠. | c | 200 | 0 | ٠. | 220 | .212 |
| 34 | | 520 | 5 | ٠. | .2600 | ٠. | 0 | 188 | 20 | ٠. | 20 | .210 |
| 33 | | 101 | | ٠. | .3000 | ٠. | 0 | .179 | 0 | ٠. | 300 | 101. |
| 35 | | 20 | 9 | ٠. ٔ | .3400 | ۲. | 0 | .177 | 0 | - | 340 | 181. |
| 5 | | 6 | C | ٠. | 0088. | ٠. | S | 170 | S | ۲. | 380 | .170 |
| 20 | | | 6 | ٠. ٔ | .4230 | 1533 | 0 | 20 | 2 | 1452 | 20 | 156 |
| | | | 4 | ٠. | 0095. | ۲. | ç | 134 | 2 | ٠. | 20 | 111 |
| 28 | | | 0 | ٠. | .5000 | ٠. | č | 135 | 2 | ٠. | 00 | .114 |
| 27 | | .152 | ζ. | ۲. | .5400 | ٠. | 0 | 119 | C | ۲. | 0 | 106 |
| 92 | | 776. | 0 | ۲, | .5800 | • | 0 | 108 | C | 0 | 580 | .085 |
| 52 | | 171 | 5 | ۲. | .6200 | ٠. | 5 | .093 | 620 | c | 620 | 040. |
| 54 | | | 5 | ٠. | 0099. | C | C | 020 | 960 | c | 660 | 170 |
| 53 | c | 860. | 200 | ٠. | 0002. | ٠. | C | .065 | 200 | 0 | 700 | 030 |
| 22 | 140 | . 093 | 0 | ۲. | 2072. | | C | 770. | 140 | c. | 740 | 910 |
| 5. | ca | \$20. | 0 | ۲. | .7800 | • | 0 | 020 | ~ | c. | 0 | .000 |
| 50 | 820 | .074 | 0 | ۲. | .8200 | | 0 | .012 | 820 | C | 820 | 210 |
| 66 | 840 | .057 | 60 | C | .8400 | | | \$000. | C | 0 | 860 | .0312 |
| œ ! | 0000 | 1.0315 | 0000. | -,0016 | .9000 | • | 0 | 7 | 006 | C | 0 | 25 |
| 11 | 5 | .026 | 5 | . 187 | 0076. | 0720. | | | c | 7270. | | |
| 16 | | | 0 | 2270. | | | . 9800 | .0612 | 20 | C | | |
| | | | | | | | | | | | | |

| ### ### ############################## | | | ONE | PA VARIARL | TH ABBES MI | WING : AFV D | CORD = 0. | N 2 | S2MA WINT | WIND TUNNEL | | TABLE 30 |
|--|-----|----------------|-------|------------|-------------|--------------|-----------|---------------|-----------|-------------|-------|----------|
| FTA # .300 | | | | | MBDA=5 | EVNOLDS . | 6.010E | .01 | 00 | | | |
| X | ETA | . \$300 | FTA | .450 | - | .690 | 4 | .750 | ETA | • | ETA | .950 |
| | - | c ₂ | - | | - | ą | - | d S | 3/x | ď | - | a. |
| | 850 | 900 | 010 | 620 | .9700 | an | 970 | 43 | 0 | 270 | 20 | 022 |
| Color | 150 | 900 | 350 | 900 | .8500 | 8 | 250 | 120 | 5 | | 5 | 2000 |
| Control Cont | 5 | 1 | 200 | 400 | 0000 | 0 0 | 2 | 110 | 0 0 | • | 200 | |
| 1.00 | 200 | | 2 4 4 | 000 | 0055 | 000 | 2 0 0 | 2000 | 250 | • | 200 | • |
| 1.00 | 250 | | 049 | 200 | 0000 | 100 | 7.00 | > C | 150 | | 200 | 0454 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 350 | | 350 | 8 | 3500 | 47 | 450 | . C | 350 | | 350 | 0551 |
| 7750 | 260 | | 240 | 980 | 2600 | . 1743 | 260 | | 260 | 1550 | 260 | 0308 |
| 1.050 | 140 | | 140 | 127 | .1402 | .1337 | 140 | .1248 | 140 | .1131 | 140 | .0282 |
| 1,000 | 075 | • | | | 0750 | . 2025 | 920 | 8761 | 075 | .1851 | 075 | .1131 |
| 1987 1987 1989 1980 | 070 | | 070 | 549 | .0400 | . 2632 | 040 | . 2668 | 070 | 1782. | 040 | .1831 |
| 1.000 | 021 | ٠. | 200 | 120 | . 1220 | . 1335 | 250 | .3319 | 022 | .3303 | 022 | .2716 |
| 0100 | 200 | 7. | 200 | 434 | 0200. | .4455 | 200 | .4391 | 100 | 3 | 200 | .3857 |
| 1, 1468 | 000 | | 600 | 5 | 0000. | n867 | 000 | ٠. | 000 | | 000 | 0102 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 010 | 7 | 010 | 20 | 00100 | -1.1785 | 010 | ۲. | 010 | ٠. | 010 | -1.1252 |
| 7550 -5924 | 930 | | 010 | 200 | .0300 | -1.0722 | 0 2 0 | • | 030 | ٠. | 030 | -1.0471 |
| 1400 - 5480 | 020 | 5. | 020 | 2 | .0500 | -1.0063 | 020 | | 020 | • | 020 | 9403 |
| 1400 | 075 | | 520 | 0 | .0759 | 4211 | 220 | | 075 | • | 510 | 9071 |
| 1400 | 0 | 7. | 0 | 20 1 | 1000 | 6431 | 100 | • | 100 | ·. | 100 | 5755 |
| 2500 - 3774 - 2700 - 7430 - 7430 - 7430 - 7352 - 2600 - 7358 - 7200 - 7354 - 2500 - 7430 - 7430 - 7430 - 7430 - 7430 - 7440 - 74 | 07 | 7. | 071 | 2 | 0041. | 4223 | 671 | • | 0 4 | | 0 4 1 | - 5479 |
| 25005774567076 | 081 | | 0 5 6 | 0 | . 1800 | 5672- | OX | | 180 | , | 1 80 | 3512 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 220 | | 220 | 70 | . 2200 | | 220 | 40.0 | 220 | | 220 | - 2820 |
| 100 | 260 | | 200 | 3 | . 2600 | 4103 | 760 | | 0 | • | 200 | 26/4 |
| 3400 -5400 -7450 | 000 | | 0 | 0 6 | . 5000 | 2812 | 300 | N . | 200 | • | 200 | 9,76. |
| 5,200 -,220 -,200 <td< td=""><td>260</td><td></td><td>240</td><td>2</td><td>. 5400</td><td>. 2033</td><td>240</td><td>\ 1</td><td>200</td><td></td><td>0 0 0</td><td>7666</td></td<> | 260 | | 240 | 2 | . 5400 | . 2033 | 240 | \ 1 | 200 | | 0 0 0 | 7666 |
| \$500 | 2 6 | | 200 | \$ 0 | . 2000 | . 7400 | 0 0 | | 0 0 | | 000 | 2000 |
| \$600 | 0 | • | 3 | 10 | 1024. | 2509 | 2 1 | V: 1 | 2 | . ' | 24 | SCAL. |
| 5400 -7374 -7300 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7370 -7400 | 000 | | - | 7 | 6004. | 1212. | 000 | _ | 0 | | 0 0 | 2001 |
| 5800 - 1750 - 1750 - 1750 - 1757 - 1757 - 17 | 000 | | 000 | 2 5 | 0005. | 1.374 | 000 | - | 000 | • | 9 5 | 2001 |
| 7000 - 11995 | 9 | | 200 | 2 | . 2400 | | 200 | - | 40 | | 3 0 | 0121 |
| 700 | 0 0 | | | 2 5 | 0000 | - 15/2 | 000 | | 000 | . ' | 0 0 | 2260 |
| 70001477 | 3 | • | 000 | 2 | 0070. | 10.0 | 2 | - 1 | 0 , | | 0 | • |
| 7400 - 17460 - 1760 - 17760 - 17760 - 17770 - 17770 - 17670 - | | | 099 | 25 | 6699 | 2960- | 940 | | 0 | • | 00 | |
| 7400 -,7501 -,7502 -,7600 -,7636 -,7201 -,7547 -,7500 -,7547 -,7540 -,7540 -,7540 -,7540 -,7540 -,7540 -,7557 -,7800 -,7800 -,7557 -,7800 -,7704 -,7800 -,7704 -,7800 -,7704 -,7800 -,7704 -,7557 -,8600 -,7075 -,8600 -,7075 -,7070 -,7177 -,8600 -,7075 -,9000 -,7177 -,9000 -,7177 -,9000 -,7179 -,7179 -,9000 -,7177 -,9000 -,7179 -,7179 -,9000 -,7177 -,9000 -,0177 -,9000 -,7179 -,7179 -,9000 -,7179 -,7179 -,9000 -,7177 -,9000 -,0177 -,0178 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,0178 -,9000 -,0177 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,0177 -,9000 -,0177 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,0177 -,9000 -,01 | 000 | , , | | 0 | 0002. | 9820- | 200 | | 100 | | 2007 | • |
| 7800 - 78 | 07/ | 146 | 07/ | 6 | 0672. | .063 | 140 | | 5 | | 240 | |
| \$200 - 1024 | 041 | 5115 | 0 | 2 | . 7800 | . 045 | 2 | - | 0 | • | 0 | • |
| \$600 - 0.750 | 200 | 701 | x 20 | 2 | . 4200 | .020 | 0 | | 2 | • | 0 | 1510. |
| 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 260 | 1.0. | 4 | 200 | 0048. | | 2 | | 0 | C . | 00 | 8140. |
| . 0010. 0139. 0800. 0835. 0800. 0812. 0800. 0817. 0820. 0850. 0850. 0850. 0850. | 0 | 670. | 000 | - | 0006. | 215 | 00 | 0 | 0 | C | 00 | 8970. |
| | C | 644. | 07 | 710 | 6076. | 033 | | 1 | 0 | 170 | | |
| | | | 0 | 33 | | | 980 | 5 | 80 | 21 | | |

| ETA = 1300 X/C SSO00735 | X % % % % % % % % % % % % % % % % % % % | | | a. | BMUN SO. | IR = 250 | .00 | | | | |
|--|--|-------|------------|---------|----------|----------|--------|-------|------|-------|-------|
| FTA = .3500 | # X % | | | MBDA=50 | ALDHI | .000E | MO= .7 | | | | |
| X/C CP X/ | X 8Y 4N4W100000000000000000000000000000000000 | 4 | 45 | • | .600 | • | 750 | • | • | • | |
| 10.0785 1.0786 | 8 | • | a 0 | - | | - | 8 | x/c | 8 | x/c | 80 |
| 1.00 | ************************************** | 0 | 025 | 0026. | 0 | 016 | 045 | 20 | 051 | 20 | .0214 |
| \$500 | # W W W W W W W W W W W W W W W W W W W | 250 | .037 | .8500 | .02 | 20 | 200. | 7500 | 250 | 7500 | |
| 100 | W4WV+00000000000000000000000000000000000 | 2 | 9 | 0000 | | 20 | | 0004 | 000 | 0054 | |
| 1,000 | 44W44000000000000000000000000000000000 | 0 0 | 24 | 0000 | | 0035 | • | 0000 | | 0000 | 200 |
| 1000 | WWW | 7000 | 200 | 0067 | | 0065 | . • | 0000 | | 4500 | 776 |
| 1,000 | 00000000000000000000000000000000000000 | 3 20 | 791 | 3500 | 7 | 3500 | | 3500 | | 350 | 141 |
| 1500 | 14440000000444444444444444444444444444 | 260 | 129 | .2600 | - | 260 | ٠. | .2600 | | 260 | 183 |
| 12.77 1.040 | 00000000000000000000000000000000000000 | 140 | 161 | .1400 | 7. | 140 | ٠. | .1400 | ٠. | 140 | 190 |
| 1977 1977 1978 1979 1979 1971 1971 1971 1977 | 44000000000000000000000000000000000000 | | | .0750 | 7 | 075 | ٠. | .0750 | ٠. | 075 | .109 |
| 07107376 | 00000000000000000000000000000000000000 | 0070. | .253 | .0400 | . 23 | 070 | ~ | 0070. | | 070 | . 253 |
| 0070 -1727 | 00000000000000000000000000000000000000 | 0220 | . 103 | .0220 | . 28 | 025 | ~ | .0220 | . 24 | 025 | .266 |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 00000000000000000000000000000000000000 | 200 | 200 | .0070 | | 200 | C | 000 | 0 | 100 | 6 |
| 1518 | 00000000000000000000000000000000000000 | 000 | 416 | 0000 | 7. | 000 | ٠. ۱ | 0000 | 77 | 000 | 77 |
| 120 | 00000000000000000000000000000000000000 | 010 | 000 | 0010. | c i | 010 | • | 0 1 0 | 8 | 0 7 0 | |
| 1000 -1420 -1454 -1000 -1462 -1460 -1462 -1560 -1454 -1600 -1464 -1460 -1462 -1460 -1462 -1600 -1600 - | 00000000000000000000000000000000000000 | | *** | 0000 | | | | | ,,, | 200 | |
| 1460 -1468 | 648484844 600000048484 60000000000000000 | 070 | 150 | 0220 | 7 | 075 | | 075 | | 075 | - |
| 1400 -1468 | 48 44 44 44 44 44 44 44 44 44 44 44 44 4 | 100 | 147 | .1000 | .14 | 100 | ۲. | 100 | 7 | 100 | - |
| 1800 -1504 | 20000000000000000000000000000000000000 | 140 | .146 | .1400 | . 13 | 140 | ٠. | 140 | .13 | 140 | * |
| 2200 -1574 | WWW WW | 100 | 153 | .1800 | .13 | 180 | ۲. | 180 | E | 180 | æ |
| 2600 -1574 | 28600 3800 3800 3800 1.1 | 220 | 154 | 220 | | 220 | | 220 | • | 220 | œ : |
| 1584 | 3450 3450 4750 111 | 260 | 77. | 260 | . 12 | 260 | | 260 | • | 260 | 9 |
| 1630 | 3800 | 000 | | 2000 | | 200 | | 300 | | 200 | E . |
| 4500 -1581 | 4500 | 100 | 7 | 9 6 | | 0 0 | . • | 1 0 | • | 2 6 | |
| 4600 -1525 | 5000 | 420 | 4.8 | 420 | - | 420 | | 420 | | 420 | , |
| 50001525 .50001437 .50001174 .50001199 .50001139 .50001139 .50001148 .5000 | 5000 - 1 | 440 | 140 | 440 | | 440 | | 460 | ٠. | 460 | 7 |
| 54001409 .54001181 .54001017 .54001055 .54000937 .54000862 .5800 | | 500 | 123 | 500 | | 500 | ۳. | 500 | - | 500 | . 1 |
| 58001300 .53000443 .5800085 .58000971 .58000862 .58000862 .58000862 .58000862 .58000862 .58000862 .58000862 .58000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000864 .50000866 .50000866 .50000866 .5800 - | 54001 | 240 | .118 | .5400 | | 240 | ٣. | 540 | | 240 | ÷ |
| 62001244 .67000939 .62000764 .67000887 .62000667 .6200066 .66000667 .62000667 .66000658 .66000656 .66000658 .66000658 .66000658 .66000658 .76000624 .76000624 .76000624 .76000632 .76000648 .76000648 .76000697 .78000648 .78000668 .7800 - | 58001 | 230 | 114 | 580 | 80. | 580 | c. | 580 | e. | 580 | .08 |
| 70000838 .70000624 .70000648 .70000557 .66000547 .70000548 .70000547 .76000540055005400550054005500540055005400550054005500540055005400550054005500540055005400550054005500540055005400550054005500540055005 | 62001 | 620 | . 193 | .6200 | .0. | 620 | c. | 620 | • | 620 | .04 |
| 70000838 .70000624 .70000648 .70000587 .700008 74000838 .74000740 .74000480 .74000347 .74000740 .7400 .74 | | 440 | 0.85 | 0099. | 90. | 940 | °. | 990 | • | 999 | 70. |
| 7400 - 0838 | 7000 183 | 20 | 182 | .7000 | ¢. | 100 | c. | 100 | • | 100 | .03 |
| 82000557 .82000503 .82000503 .82000500 .8200 .0164 .8200 .0088 .82000164 .8200 .0088 .86000164 .8200 .0088 .86000164 .8600 .0088 .86000164 .8600 .0089 .90000164 .9600 .0088 .9000 .0164 .9000 .016 | 7400 - 083 | 077 | 470. | .7400 | 5 | 740 | • | 740 | • | 072 | .00 |
| 86000674 .8200027 .86000130 .82000200 .8600 .0161 .8600 .00 86000606 .84000137 .8600 .00 89000674 .9000 .00 89000571 .9000 .9000 .0088 .9000 .0244 .9000 .06 86000571 .9000 .0340 .0250 .9400 .0354 | 7800 - 0087 | 0 8 0 | | 0082. | 4 1 | 780 | 0. | 787 | | 0082. | .00 |
| 90000571 .90000119 .9000 .0000 .0088 .9000 .00543 .9000 .0069 .9000 .0344 .9000 .0069 .0400 .0257 .9000 .0354 | 8200 - 0028 | 0 5 0 | | 0028. | 0 | 820 | | 078 | • | 9550 | 6 |
| \$200 - 0.529 | 0000 | | | 0000 | | 0000 | | 0000 | | 0000 | 3 |
| 0.000 9690 0000 0000 | 250 - 0076 | 0 % | | 0000 | 2 6 | 0004. | • | 0000 | , c | 0004. | 5 |
| | 7600- 000 | 0 0 0 | 200 | | - | C | 70 | 0000 |) C | | |

0 / B 40 + 10 M F 40 P / B 40 + 10 M F 40 P / B 40 + 10 M F 40 P / B 40 P /

| ETA = | | | | | 3 | BER = 250 | .000 | | | | |
|---------|---------|--------|---------|------------|----------|-----------|------------|--------|--------|--------|--------|
| A | | | | LAMBDA=50. | EG ALPHA | = 3.90DF | 647. =OM 2 | 3 | | | |
| | 0002. | FTA = | 0057. = | ETA = | 0009. | ETA = | .7500 | ETA = | . 8500 | ETA = | .9500 |
| X/C | ٥٤ | ×/× | 92 | x/c | 9.0 | 3/X | d D | X/c | 8 | x/c | 90 |
| 50 | 25 | 0 | 23 | 0026 | 39 | 0 | 30 | 0026 | .0439 | .8500 | .0179 |
| | | .8500 | | .8500 | 0053 | .8500 | .0024 | • | | | |
| | | 50 | 25 | .7500 | 12 | 750 | 14 | 20 | 15 | 20 | 60 |
| .650 | .053 | 039 | . 143 | 0059. | 350 | | | 50 | .03 | 20 | |
| .550 | 950. | 550 | .056 | 0055. | 780 | 0 | • | 50 | 570. | 50 | .082 |
| 055. | 090. | 450 | .061 | 450 | 052 | 0 | 0471 | 20 | 670. | 450 | 106 |
| .350 | 270 | 350 | 170. | .3500 | 131 | 0 | | 50 | 036 | 350 | 1019 |
| .240 | . n. 7. | 240 | 20 | .2600 | .005 | 0 | | 60 | .015 | 69 | \$60. |
| .140 | 014 | 07 | 23 | .1400 | 37 | 0 | .0379 | 5 | - | 0, | |
| 540. | 290 | | | 0520. | 04 | - | 9680. | 75 | 085 | 075 | |
| 070. | 200 | 07 | .1121 | .0400 | 50 | 0 | 1416 | 60 | 132 | 040 | |
| 120. | 07 | 25 | . 1700 | 0620. | 189 | ~ | . 1953 | 22 | 200 | 22 | |
| 200. | 347 | 2 | 4759 | 0200. | 388 | ~ | . 3928 | 07 | • | 000 | |
| 000. | 235 | 00 | . 2301 | 0000. | 194 | 0 | 9490. | 00 | .1000 | 000 | |
| .010 | .822 | 10 | 8738 | 0010. | . 927 | 0 | 9104 | 20 | 0 | 010 | .928 |
| 650. | 778. | 0 2 0 | 9367 | .0300 | .031 | 0 | • | 30 | .985 | 030 | |
| 050. | .565 | 20 | • | .0500 | .716 | C | • | 20 | .709 | 020 | .730 |
| .075 | .390 | 075 | • | 075 | \$07. | 2 | 4462 | 075 | | 075 | 422 |
| .100 | .365 | 0 | • | .1000 | 395 | 0 | • | CO | .368 | 0 | .390 |
| .140 | 725. | 07 | • | .1400 | 272. | 0 | • | 5 | .324 | 0 | 397 |
| .180 | .323 | 0 | • | .1800 | 306 | 0 | • | 180 | . 285 | 180 | .298 |
| .220 | .315 | 220 | • | .2200 | . 288 | 0 | | 220 | .286 | 20 | .278 |
| .260 | .307 | 9 | • | .2600 | 9 | 0 | | 260 | .241 | 260 | 267 |
| .300 | .287 | 000 | • | .3000 | 156. | 0 | • | 300 | 733 | 300 | . 244 |
| .347 | . 283 | 075 | • | .3400 | 244 | 0 | • | 9 | 122. | 340 | .278 |
| .380 | .277 | 280 | • | . 3800 | . 235 | - | • | 380 | 112. | 80 | 212 |
| .420 | . 269 | 20 | • | .4200 | .71 | 0 | • | 2 | 190 | 420 | 104 |
| .460 | . 256 | 9 | • | 0047. | 900. | 0 | | S | 181. | 9 | 110 |
| . 5000 | 2442 | . 5000 | 2038 | . 5000 | 1834 | . 5000 | 1757 | . 5000 | 1623 | . 5000 | 1451 |
| 675. | .220 | 07 | • | .5400 | 191 | 0 | • | 0 | .134 | 9 | .124 |
| .580 | .210 | 00 | • | .5800 | 139 | 0 | | 8 | .13 | 80 | 106 |
| 029. | .200 | 20 | • | .6200 | .122 | | | 2 | 160. | 20 | .078 |
| | | 60 | • | 0099. | 200. | - | | 20 | .085 | 999 | .055 |
| 3 .7000 | 1550 | 200 | • | .7000 | 100 | 0 | | 00 | 0 | 0 | .041 |
| 072. | 145 | 140 | • | .7400 | .071 | 0 | | 50 | .043 | 00 | .023 |
| .780 | 120 | 780 | • | . 7800 | .057 | 0 | | 80 | 33 | 80 | 008 |
| .820 | 120 | 20 | • | .8200 | 137 | 0 | 0229 | 50 | 10 | 20 | \$600. |
| .840 | 600. | 90 | • | .8400 | .018 | 0 | 0102 | 9 | 5 | 9 | 28 |
| 006. | 12 | 00 | 0151 | 0006. | .0045 | 0 | .0130 | 0 | 28 | 00 | 20 |
| 076. | .054 | 07 | 720v. | 0076. | 22 | | | Ç | 33 | | |
| | | 0 | .0323 | | | .9800 | 5650. | 980 | .0572 | | |

The property of the second second

| _ |
|-------|
| 2 |
| • |
| - |
| HIND |
| 7 |
| = |
| • |
| 3 |
| |
| - |
| • |
| S 2MA |
| ~ |
| |
| S |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| 1 |
| 2 |
| |
| 2. |
| 10 |
| • |
| 0 |
| _ |
| |
| - |
| |
| _ |
| 0 |
| œ |
| 0 |
| 9 |
| CORD |
| |
| |
| |
| 0 |
| |

| TABLE | | ETA = .9500 | x/c cP | 8500 .0170 | | 200 | 200 | 55001321 | 000 | 200 | 1400 | 0750 2 | 0000 | 02202 | 0070 | 7. 0000 | 01000 | 0300 4 | 0500 | 0750 2 | 1000 | 1400 2 | 1800 1 | 2200 2 | 26002 | 3000 | 34002 | 38002 | 200 | 000 | 2000 | 007 | 8001 | 200 0 | 000 | 000 | 0 007 | 800 - 0 | 2000 | 009 | 0.000 | |
|------------|--------------------------|-------------|--------|------------|--------|-------|-------|----------|-------|-------|--------|--------|-------|---------|--------|---------|--------|--------|-------|--------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|---------|-------|-------|--------|-------|
| TUNNEL | | .8500 | 8 | . 7570. | - ' | • | • | . 1161 | | | | 1784 | .2354 | 2. | 7670 | 4317 | .0668 | • | - | | .1573 | .1513 | .1314 | .1574 | ٠. | 1487 | 1484 | | • | • | - | - | ٠. | c. | c. | | 0 | 0 | c. | c. | C | .0254 |
| SZMA WIND | | ETA : | 3/x | .9700 | 3 | 0 | C | .5500 | 0 | 2 6 | | - | 0 | ~ | - | 0 | 0 | C | 0 | ~ | 0 | - | C | C | - | C | C | C | 0 | C | 0 | • | 0 | - | C | 0 | - | 0 | - | - | - | - |
| ¥ 2 | 000. MO= .8437 | .7500 | 8 | 38 | 0217 | .054 | , | 0811. | . • | | -,1509 | ٠. | ~ | | C | ٠. | c. | 2443 | ٠. | 1644 | ٠. | 1513 | - | ٠. | ٠. | ۲. | - | | • | - | • | ٠. | ٣. | ٠. | c. | ç | C | ç | C | ٠. | 0 | |
| CORD = 0.2 | ER = 2500 | ETA = | x/c | 20 | .8500 | 20 | | . 5500 | - 0 | | 0 | - | 0 | • | ~ | 0 | 0 | 0 | 0 | - | 0 | C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| G . AFV D | YNGLDS NUMB DEG ALPHA | 0009. | 9 | .0368 | | C | • | • | • | . • | | ٠. | | ۳. | c. | 6017. | 0674 | 2245 | ٠. | | ٠. | ۲. | ٠. | ۲. | 1426 | ۲. | • | ۲. | • | • | ٠. | ۲. | ۲. | | | ٠. | C | ٠. | | | | 0160 |
| SWEEP WING | REY LAMBDA=50. | ETA = | 3/x | 0026. | .8500 | .7500 | .6500 | . 5500 | 0005. | 2600 | 1400 | 075 | 0070. | .0220 | . 0070 | 0000. | . 0100 | .0300 | .0500 | .9750 | .1000 | .1400 | .1800 | .2200 | .2600 | .3000 | .3400 | .3800 | .4200 | 0097. | . 5000 | .5400 | .5809 | .6200 | 0099. | 0002. | 0072. | .7800 | .8200 | .8600 | 0000. | 0076 |
| A VARIABLE | | 0057. | ď | 17 | | 180 | . 13 | 5 0 | 000 | 1 4 8 | 186 | | 2 | -, 3268 | ٠. | 7. | ٠. | | ٠. | | ٠. | ٠. | ٠. | ٠. | ۲. | ۲. | - | ٠. | •. | ٠. | ٠. | ٠. | ٠. | ۲. | ۲. | ۲. | ٠. | 9 | ۲. | ۲. | 0246 | C |
| ONER | | ETA = | 3/X | 0 | . 8500 | 20 | 20 | 5 | 0 | 2 | 07 | | 07 | 32 | 2 | 0 | 10 | 020 | 20 | 15 | S | 140 | 80 | 520 | 04 | 300 | 340 | 0 | 0 | 60 | 0 | 0 | 00 | 20 | 660 | 200 | 07 | 780 | 000 | 840 | 0600. | 0 |
| | | . 3000 | دي | 660. | 1269 | • | - | 1765 | . ' | . • | | | ٠. | ٠. | 0. | 4 | 0 | | ٠. | | ٦. | ۲. | ٠. | ٠. | ٠. | ۲. | ٠. | ٠. | • | • | ۲. | ۲. | ٠. | ٠. | | .108 | .109 | 200. | 700. | .083 | -,0783 | 075 |
| | | ETA = | X/C | 50 | .7500 | 1 | 20 | .5500 | 5 | 260 | 7 | 075 | 040 | 021 | 200 | 0 | 010 | 030 | 020 | 075 | 6 | 07 | 8 | 220 | 9 | 300 | 340 | 0 | 20 | 60 | 00 | 40 | 80 | 620 | | 0 | 07 | 0 | 20 | 840 | 0000 | 0 % |
| | | | | 24 | 13 | 15 | | 0 | | | . • | ~ | 4 | ~ | 2 | - | 75 | 1.7 | 07 | 30 | 30 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 62 | 28 | 27 | 92 | 52 | 72 | 23 | 22 | 21 | 20 | 10 | 18 | 17 |

| ## 250000 ## 250000 ## 250000 ## 25000 ## | | | | 200 | FP = 2500 | 0 | | | | |
|---|----------|-------|---------|--------|-----------|-----------|-------|-------|-------|--------|
| FTA = .4500 ETA = .4500 ETA = .4500 ETA = .6500 ETA = | | | MBDA=50 | ALPHA | 4.02DEG | 8. =OM | | | | |
| X/C CP X/ | O ETA | 450 | 4 × | 900 | • | 750 | ETA = | .8500 | ETA = | .9500 |
| 7.70 | /x a | 9 | - | a u | - | d | - | 8 | X/C | 9 |
| 7.77 | 076. 20 | 11 | 970 | 027 | 10 | 028 | 20 | .0326 | .8500 | .0055 |
| 0647 0667 0667 0667 0667 0667 0667 0667 | .8500 | . 25 | C | .014 | 20 | .008 | | | | |
| 7.500 | 0657. | . 750 | 2007 | .073 | 20 | • 0 7 0 • | 0 | 200 | 0000 | . 0235 |
| 10.054 1.057 1.0 | 2500 | 288 | 550 | 1 4 | C | .051 | 200 | 0 2 0 | 20 | |
| 12.5 1.5 | 0057 | 120 | 450 | 061 | 0 | 057 | 20 | 190 | 20 | 131 |
| 7.548 | 3500 | . 53 | 350 | 170 | C | .042 | 350 | 170. | 20 | 119 |
| 14.00 | 8 .260 | 900 | 0 | 40v. | 0 | 600. | 260 | 018 | 9 | 103 |
| 7543 7544 754 754 7544 7544 7544 7544 7544 7544 7544 7544 7544 7544 75 | 3 .140 | 116 | 140 | 131 | 0 | 034 | 140 | 027 | 07 | .038 |
| 7361 7377 7377 7377 7377 7377 7377 7377 | • | | 975 | 000 | - | 086 | 075 | 083 | 75 | 033 |
| 3427 | 070. | - | 0 | 127 | 0 | 140 | 070 | 133 | 07 | 082 |
| 3427 0070 3820 0070 3914 2470 0100 3820 0000 0000 0000 2470 0100 378 0000 0886 0000 2470 0100 378 0000 0886 030 2470 0000 0750 0750 0886 073 2472 0000 0750 0750 0787 070 3643 1400 0750 1750 1888 050 3547 1400 0750 1750 1887 140 3548 1400 0750 1750 1887 140 3547 1400 0750 1750 1740 1740 3548 1400 0750 1750 1744 1740 3547 1400 0750 1750 1740 1740 3548 1760 0750 1750 1744 1740 3549 1750 1750 1750 1744 1740 3540 1750 1750 1750 1750 < | 500. | - | - | 199 | 2 | 194 | 022 | 201 | 022 | 141 |
| 7470 | 200. | - | - | 382 | ~ | 391 | 200 | 390 | 10 | 342 |
| 7911 7911 7911 7911 7911 7911 7911 7911 | 000. | ~ | 0 | 204 | C | 050 | 000 | 707 | 000 | 237 |
| 7350 | 010. | α. | 0 | 878. | 0 | .884 | 010 | 931 | 010 | 899 |
| 7350 | 030 | ٠. | C | 276. | 0 | .952 | 030 | 9497 | 030 | 942 |
| 4274 .0750 .5406 .0750 .6413 .1000 .4571 .1000 .2582 .2580 | 050. | ٥. | 0 | .937 | 0 | 898. | 050 | 76. | 050 | 952 |
| 4629 1000 -4413 -1000 -4571 -1000 3643 -4400 -3484 -1400 -4574 -1400 -4578 -1400 3643 -4600 -3498 -3294 -3400 -3443 -250 3545 -3298 -3294 -3600 -3443 -250 3546 -3294 -3600 -3482 -360 3727 -4600 -2940 -3400 -2946 3744 -2600 -2940 -3400 -2946 3727 -4600 -2940 -2940 -3400 3746 -2609 -2759 -3400 -2946 3747 -2740 -2759 -3400 -2946 3746 -2609 -2759 -3400 -27646 3746 -2600 -2759 -2759 -2760 3746 -2600 -2759 -2760 -27646 3746 -2600 -2760 -2760 -2760 3760 -2760 -2760 -2760 -2760 3760 -2760 | 240. | 7 | - | .510 | 5 | 587 | 075 | 59 | 075 | |
| 3643 | 0001. | 7. | 0 | .441 | 0 | .457 | 100 | .38 | 100 | .397 |
| 3553 3565 3577 3585 3577 3585 3577 3586 3587 3587 3587 3587 3588 3587 3587 3587 | 0071. | ۳. | C: | .347 | 0 | . 157 | 140 | .33 | 140 | 341 |
| 3535 3547 3548 3547 3549 3547 3540 3540 3540 3540 3540 3540 3540 3540 | 3 .1800 | ٣. | 0 | 329 | 0 | .332 | 180 | .322 | 180 | .323 |
| 3323 3700 3700 3717 3700 3717 3700 3717 3700 3717 3700 3717 3700 3717 3700 3717 3700 3700 | 22000 | | | 312 | C | 314 | 220 | 3. | 220 | 762 |
| 3323 3400 3524 3525 3400 3526 3400 3527 3500 3500 3500 3500 3500 3500 3500 350 | 2600 | | - | . 298 | C | 298 | 260 | 263 | 260 | .279 |
| 3265 3400 - 2927 3400 - 2595 3400 - 2595 3400 - 2597 3400 - 2595 3 | 3 .3000 | ۲. | C | . 282 | 0 | . 282 | 300 | . 256 | 300 | .262 |
| 3127 | 5 .34.0 | | 340 | .269 | 0 | .264 | 340 | .247 | 07 | .255 |
| 3127 | 0002. | ~ | 380 | . 259 | 0 | .250 | 80 | 244 | 80 | 235 |
| 7846 . 5000 - 2573 . 5000 - 7779 . 4600 - 7005 . 5000 - 7273 . 5000 - 7006 . 5000 - 70 | 0665. | | 0 | .236 | 0 | .231 | 420 | .213 | 20 | 216 |
| . 2846 . 5000 2273 . 5000 2040 . 5000 1950 . 5000 1950 . 5000 1950 . 5000 1950 . 5000 1950 . 5000 1950 1950 1950 1950 1950 1950 1950 1950 1950 | 0097. | | - | .227 | 0 | .200 | 097 | .204 | 9 | 100 |
| 2595 .54007086 .54001750 .54001754 .5800 .7540 .58001579 .5800 .7540 .7579 .5800 .7550 .5800 .1579 .5800 .7550 .5800 .1579 .5800 .7579 .5800 .7579 .5800 .7579 .5800 .7579 .5800 .7579 .7600 .7579 .7600 .7579 .7600 .7579 .7600 .7579 .7600 .7579 .7600 .7579 .8200 .7579 .8200 .7579 .8200 .7579 .8600 .7579 .8600 .7579 .8600 .7579 .8600 .7579 .7570 .7600 .7679 .7600 .7679 .7600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .8600 .7679 .7670 .76 | 20005. | | 0 | .204 | 0 | 195 | 200 | 77 | 00 | .143 |
| -2392 | 2400 | ٠. | - | .180 | - | .175 | 0 | .140 | 240 | 671 |
| .2392 | 0005. | ۲. | - | .155 | 0 | 157 | 580 | .133 | 80 | 120 |
| . 6600 - 1496 | 0029. | ۲. | - | .137 | 0 | .136 | 620 | 60 | 20 | .092 |
| -1832 .700 -1157 .7000 -1115 .7000 .0057 .7000 .0054 .700 .7000 .0055 .7400 .7400 .0055 .7 | 0049. | ۲. | C | 121 | C | 106 | 999 | .100 | 09 | 640. |
| -1586 .7400525 .74000867 .74000525 .78000525 .78000525 .78000525 .78000525 .78000525 .78000525 .78000505 .82000505 .82000505 .86000505 | 32 .7000 | ۲. | 0 | 101 | 0 | 960. | 700 | 081 | 00 | 054 |
| -1586 .7800525 .7800525 .7800525 .7800525 .7800525 .7800525 .7800525051382005670503 .860051386005030503050305030503050305030503050405030504 | 0072. 56 | ۲. | - | . 186 | 0 | .073 | 140 | 055 | 00 | .033 |
| . 1492 . 8200 - 0767 . 8200 - 0487 . 8200 - 0351 . 820 . 1760 . 8600 - 0503 . 8600 - 0355 . 8600 - 0213 . 860 . 1002 . 0000 - 0271 . 9000 - 0084 . 9000 . 0007 . 900 . 0767 . 9400 - 0266 . 9400 . 0145 | 0007. 88 | ۲. | - | 46 | 0 | .052 | 780 | .046 | 780 | .014 |
| -1750 .86000503 .8600055 .8600 .0513 .860 1002 .00000271 .9000 .0084 .9000 .0007 .900 0767 .94000526 .9600 .0145 .000 | 0028. 26 | | 0 | .048 | 0 | .035 | 820 | | .8200 | 005 |
| 01620167016401640167 | 00 8. 09 | ٠. | C | . 0.33 | 0 | .021 | 860 | .01 | 09 | 023 |
| .0767 .94.0026 .94.0 .04.5 .00.0 .737. | 0000 20 | ٠, | C | 800 | 0 | 000 | 00 | 017 | 00 | 042 |
| 727 080 | 676. 79 | ٠. | . 0 | 114 |) | | 6 | 028 | | |
| | 080 | • | | | .9800 | .0377 | 980 | 970 | | |

4WV4008V6V6V6V6V6

| CP X/C CP | | | | MBDA=50 | LOS | ER = 25 | 000. MO= .92 | | | | |
|--|-------|------|-------|---------|-------|---------|-----------------|--------|------|-------|----------|
| ## 17.0 | | | | | | | | | | | |
| X/C CP X/ | .300 | 4 | 057. | 4 | .600 | TA | .750 | ¥ | .850 | ETA = | 9500 |
| 1922 1920 | | - | | x/c | 8 | • | | - | 9 | X/C | a |
| 2522 | . 152 | 026. | 00 | | 0 | 970 | 028 | 20 | 030 | | .0123 |
| 7.2525 7.750 | .202 | .850 | .05 | - | ٠. | 850 | .032 | | | | |
| 7.25 | | 0.2. | 60. | | ٠. | 750 | .068 | .7500 | .074 | - | 0413 |
| 7.2263 | .219 | .650 | .13 | ~ | ۲. | | 1 | .6500 | .11 | 20 | .134 |
| 23.22 | .226 | 055. | . 47 | 55 | ٠. | 250 | .134 | .5500 | ٠. | 20 | .243 |
| 7356 | .232 | 057. | . 2 | 45 | ۲. | 450 | .164 | 0057. | ۲. | 20 | .237 |
| 1,000 | .226 | .350 | .19 | 35 | ٠. | 350 | .175 | .3500 | ٠. | 20 | 227 |
| 7.755 | .218 | .240 | .20 | 26 | ٠. | 260 | .140 | .2600 | ٠. | 50 | .210 |
| 7.778 | .205 | .140 | . 23 | 7 | ٠. | 140 | 196. | 7 | ٠. | 9 | 201 |
| 2378 .0400 -34104 .0400 .4778 .0400 -0720 .0720 | 900. | | | 6 | | 075 | 197 | 6 | ۲. | 075 | 206. |
| 7358 | .277 | 070. | . 110 | 0 | | 070 | .250 | 70 | 2 | 070 | .240 |
| 100 | 135 | 200. | .353 | 02 | | 022 | 304 | 0 | ~ | 022 | 248 |
| 0000 - 1084 | 018 | 200. | 910 | 0 | | 200 | 030 | 0 | C | 000 | 110 |
| 1,000 | 403 | 000 | 499 | 0 | -3 | 000 | 108 | 0 | 4 | 000 | 047 |
| 1000 | 065 | 010. | 184 | 5 | | 010 | 034 | 5 | | 010 | .073 |
| 1894 | .240 | 010 | .274 | 03 | | 030 | 265 | 6 | | 030 | 315 |
| 1786 1750 -2066 -1750 -1824 -1765 -1745 -1745 -1772 | .189 | 050. | .222 | 9 | ٠. | 050 | 204 | 0 | ~ | 050 | .231 |
| 1726 1700 - 2051 1000 - 1766 1100 - 1745 1100 - 1745 1100 - 1775 1100 - 1775 1100 - 1776 1100 - 1776 1100 - 1770 - 1770 1100 - 1770 - | .178 | .075 | .206 | 0 | ٠. | 075 | .182 | 6 | ٠. | 075 | 197 |
| 1400 | 170 | 100 | - 205 | 6 | ٠. | 100 | 174 | 5 | ٠. | 100 | .204 |
| 1891 | . 170 | 071. | . 208 | 7 | • | 140 | -17 | 7 | ۲. | 140 | .205 |
| 2010 | .189 | 140 | .216 | 8 | ٠. | 180 | .170 | 2 | ۲. | 180 | 104 |
| 2002 | .201 | .220 | .218 | 22 | ٠. | 220 | 170 | 22 | ٠. | 220 | 2019 |
| 2103 | .209 | .260 | .216 | 26 | ٠. | 260 | .170 | 26 | ٠. | 260 | . 221 |
| 2240 | .210 | .300 | .210 | 30 | ٠. | 300 | .168 | 30 | ٣. | 300 | . > > 2 |
| .2240 .4200241238001444450017343800177538 .22404200147242001472460017444600174746001746460017474600174446001747460017444600174746001744460017474600174446001747460017444600174446001746460017464600174746001747460017484600174646001746460017464600174646001746460017464600174776001748460017484600174646001746460017467600174646001746760017464600174646001746760076007600760 | 214 | 072 | 195 | 34 | ٠. | 340 | .175 | 34 | ۲. | 340 | .235 |
| .2240 .42001981 .420014764500172842001746450172842001746450174645017474500173445001734454556001738560017347545560017385600173856001738560017385600173875001738 . | .218 | .340 | .211 | .3800 | .176 | 380 | 173 | .3800 | ۳. | 380 | 177 |
| 207 | .224 | 027. | .205 | .4200 | .164 | 027 | .172 | .4200 | ۳. | 420 | .252 |
| .207 | 220 | 097. | 198 | 44 | 144. | 097 | 147 | 0097. | ٠. | 097 | .244 |
| .2071 .54001548 .58001453 .54001385 .540013464 .58001548 .58001548 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .58001267 .78000788 .74000756 .74000756 .74000757 .78000756 .74000756 .74000757 .78000757 .78000757 .78000757 .78000756 .74000756 .74000757 .7800075 | .216 | 0.5. | .173 | 20 | . 154 | 500 | .158 | . 5000 | ۲. | 200 | .234 |
| .2007 | .207 | .540 | .462 | .5400 | . 135 | 240 | .138 | . 5400 | ٠. | 0 | .226 |
| .2007 .67001379 .62001065 .65001181 .62001091 .62 .66001242 .6600096006000948 .70001108 .660 .1754 .70001123 .74000756 .74000756 .74000779 .74 .1754 .74000922 .74000654 .74000756 .74000779 .78 .1550 .87000817 .82000513 .78000573 .78000573 .78000573 .78000573 .78000577 .8500057 | .201 | .580 | .154 | .5800 | .116 | 580 | .128 | .5800 | ٠. | 00 | .198 |
| .66001242 .6600096006000963 .66001108 .6601024 .7001724 .7000724 .7000724 .7000724 .7000724 .7000724 .7000724 .7000724 .7000727 .7200727 .7200727 .7200727 .7200727 .8200573 .72000727 .8200573 .72000727 .8200517 .82000727 .82000727 .82000727 .82000727 .82000727 .82000727 .82000727 .7200 .00000727 .9 | .200 | 069. | .137 | ç | 106 | 620 | .118 | .6200 | 100 | 620 | .152 |
| . 1754 . 7000 - 1219 . 70000887 . 70000948 . 70001021 . 70 . 1734 . 74000788 . 74000756 . 74000779 . 78 . 1550 . 78000817 . 82000517 . 82000517 . 82 . 1550 . 84000517 . 86000517 . 86000514 . 82000517 . 82 . 1309 . 90000375 . 90000136 . 90000149 . 90000144 . 94000174 . 94000043 | | .640 | 124 | 99 | 960. | 660 | 960. | 9 | .110 | 660 | 1117 |
| .1734 .74001123 .74000788 .74000756 .74000779 .74 .1591 .78000817 .82000573 .78000777 .78 .1550 .87000817 .82000517 .82000517 .87 .1502 .84000517 .86000724 .86000128 .86000517 .86 .1302 .90000174 .9400 .0082 .9000014 | .175 | .700 | .121 | 20 | .088 | 700 | 760. | 20 | .102 | 700 | .080 |
| .1550 | .173 | 072. | .112 | 2 | 840. | 240 | .075 | .7400 | .077 | 740 | 250. |
| .1550 .82000817 .82000517 .82000451 .82000517 .82 .1402 .84000567 .8600024 .86000328 .86000349 .86 .1309 .91000375 .90000136 .90000119 .90000043 .90 .1326 .94000174 .9400 .0082 | .159 | 0×2. | .092 | 78 | .065 | 780 | .057 | .7800 | .072 | 30 | 660. |
| .1502 .84000567 .86000724 .86000328 .86000349 .86 .1309 .91000375 .90000136 .90000119 .90000043 .90 .1326 .94000174 .9400 .0082 | .155 | . R. | .081 | 82 | 150. | .8200 | .045 | .8200 | .051 | 0 | .009 |
| .1309 .90000375 .90000136 .90000119 .90000043 .90 | .140 | .840 | .056 | 86 | .022 | .8600 | .032 | .8600 | .034 | 20 | 110 |
| .1326 .94000174 .9400 .0582 | .130 | 006. | .037 | 0006 | 013 | 0006. | 011 | 0006. | 700 | 0 | 950 |
| 3000 | 122 | 076 | 017 | 0070 | 10 | | | 0070 | 800 | | |
| 520 0080 0530 0080 0C | | 000 | 400 | 2011 | 200 | 0 | | | | | |

The same of the sa

| | | | | LAMBDA=50 | EYNOLDS NUM | 3ER = 25 | 00000. EG MO= ,921 | 12 | | | |
|------|-------|-------|---------|-----------|-------------|----------|-----------------------|--------|--------|-------|---------|
| ETA | .3000 | FTA | 0057. = | ETA | 0009. = | ETA : | 0054. = | ETA S | .8500 | ETA : | 0056. = |
| 3/x | 9.0 | 3/X | 8 | 3/x | 9 | 3/x | 8 | x/c | 9 | x/c | e. |
| 5 | 1119 | 2 | | .9700 | .0265 | 20 | .0230 | .9700 | .0250 | .8500 | 0700. |
| 1500 | 135 | .8500 | 0513 | .8500 | | .8500 | 0277 | 7500 | , | | 2 |
| 5 | 456 | 2 2 | 70. | 7 | | 20 | • | 0000 | | 0067. | 3 . |
| 200 | -1647 | 0 | 127 | 25500 | 0 | 5 | 0991 | . 5500 | 00 | 5500 | |
| 200 | 169 | 450 | 448 | 450 | - | .4500 | 1195 | .4500 | .112 | 450 | 2 |
| 50 | 159 | 350 | 152 | 350 | .10 | 0 | • | .3500 | 106 | 50 | ~ |
| 69 | .132 | 260 | 134 | 260 | 0 | - | 8960 | .2600 | Ç | 9 | 1468 |
| 9 | . 02 | 140 | 100 | .1400 | .0. | 0 | • | .1400 | .067 | 140 | - |
| 75 | .072 | | 1 | .0750 | 70. | 2 | • | .0750 | .035 | 075 | 0 |
| 07 | .076 | 40 | 081 | 0070. | 70. | 0 | • | 0070. | | 070 | 2 |
| 21 | .077 | 022 | 150. | 050 | .02 | N | • | .0220 | .0160 | 025 | ć |
| 0 | 101 | 00 | 216 | 007 | 2076. | ~ | . 2619 | 0200 | .2718 | 000 | ~ |
| 00 | .375 | ç | 369 | 000 | .36 | 0 | • | 0000 | .3785 | 000 | 07. |
| 0100 | 369 | 010 | 417 | .0100 | 97. | 010 | • | 0100 | | 010 | .47 |
| 200 | 482 | 050 | 286 | 030 | 2 | 030 | • | 0050. | | 030 | 9 |
| 0 0 | 26.07 | 0000 | 1220 | 000 | 200 | 0000 | 1,1072 | 0000 | 22766 | 0000 | |
| 3 | 280 | 100 | 441 | 1000 | 2611 | 100 | • | 0001 | - 2777 | 0 | 1233 |
| 9 | 277 | 140 | 325 | 140 | 26 | | | 1400 | | 140 | |
| 0 | . 275 | 180 | 332 | .1800 | 25 | 180 | 2766 | .1800 | 2503 | 80 | 7888 |
| 20 | .289 | 220 | 316 | 220 | • | 220 | | .2200 | 2582 | 220 | . 78 |
| 9 | . 293 | 240 | 311 | 260 | .26 | - | | .2600 | • | 260 | .28 |
| 00 | . 289 | 300 | 307 | .3000 | - | - | 2390 | .3000 | • | 300 | .24 |
| 00 | 700. | 0 7 | .12 | .3400 | .25 | - | | .3400 | 2253 | 07 | |
| 80 | .300 | 80 | 316 | .3800 | - | - | 2259 | .3800 | • | 80 | .27 |
| 20 | 302 | 20 | 196. | .4200 | * | 0 | • | .4200 | .209 | 20 | Ľ |
| 9 | .298 | 440 | 214 | 0097. | . 20 | - | • | 0097. | .201 | 60 | 7. |
| 9 | . 286 | 200 | 196 | . 5000 | . 1 8 | 0 | • | .5000 | .186 | 00 | 2224 |
| 07 | .265 | 40 | 184 | .5400 | .16 | - | • | .5400 | .161 | 07 | . 20 |
| 80 | .258 | 280 | 175 | .5800 | | 0 | • | .5800 | .146 | 80 | - |
| 20 | .263 | 620 | 154 | .6200 | ~ | C | • | .6200 | 2 | 20 | - |
| , | | 999 | 139 | 0099. | .10 | C | • | 0099. | .117 | 60 | č |
| 0 | .234 | 100 | 130 | .7000 | .10 | 0 | • | .7000 | .103 | 00 | .0 |
| 4 | . 238 | 140 | 115 | 0072. | œ c . | 0 | 0828 | .7400 | .076 | 740 | 70. |
| 00 | .220 | 780 | .093 | 780 | c. | 0 | • | .7800 | .067 | 80 | 0 |
| 8200 | 2034 | 50 | 940 | .8200 | 70. | - | • | .8200 | 0446 | 20 | 0021 |
| ~ | .160 | 860 | .050 | .8400 | 0213 | 0 | 0306 | .8600 | 2 | 60 | • |
| C | | | | **** | | • | | | 1 | - | |
| • | . 137 | 00 | 07. | 0006. | 1900- | - | 0070 | 0006. | 3 | 006 | 4 |

TABLE 41

WING GEOMETRY

1: Theoretical wing geometry

2: Measured wing geometry

| Λ° | Root c(i | chord m) | Semi b(r | | Aspec | t ratio | Wing S(r | |
|----|-------------|-------------|-------------|-------|-------|---------|-------------|--------|
| 0 | · | | 0,800 | | 8,00 | | 0,1600 | 0,1590 |
| 30 | 0,231 | 0,231 | 0,721 | 0,714 | 6,71 | 6,64 | 0,1550 | 0,1533 |
| 40 | 0,261 | 0,261 | 0,645 | 0,637 | 5,49 | 5,43 | 0,1515 | 0,1495 |
| 50 | 0,311 | 0,312 | 0,547 | 0,539 | 4,09 | 4,04 | 0,1463 | 0,1437 |
| 60 | 0,400 | 0,401 | 0,430 | 0,422 | 2,69 | 2,66 | 0,1373 | 0,1341 |

TABLE 42

FREE STREAM MACH NUMBER VARIATION WITH INCIDENCE DURING FORCE MEASUREMENTS

| Λ • | α. | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
|---------|--------------------------|-------|-------|-------|-------|---------|-------|-------|-------|
| <i></i> | M ₀ at α=0 | | | ΔΜ. = | [M•α: | =0° - N | 1.] | | |
| 0 | 0.781 | 0.001 | 0.003 | 0.005 | 0.009 | | | | |
| | 0.921 | 0.000 | 0.004 | 0.014 | 0.025 | | | | |
| 30 | 0.781 | 0.001 | 0.003 | 0.005 | 0.010 | 0.019 | 0.019 | 0.016 | 0.016 |
| 30 | 0.921 | 0.000 | 0.002 | 0.009 | | | | | y . |
| 40 | 0.783 | 002 | 0.000 | 0.005 | 0.011 | 0.015 | 0.015 | 0.016 | 0.016 |
| 60 | 0.926 | 0.000 | 0.004 | 0.014 | 0.030 | | | | |

FIG 1

VARIABLE SWEEP WING AFV D

Aspect ratio $8 \nearrow A \nearrow 2.71$

Taper ratio $\lambda = 1$

Sweep angle $0^{\circ} \leqslant \Lambda \leqslant 60^{\circ}$

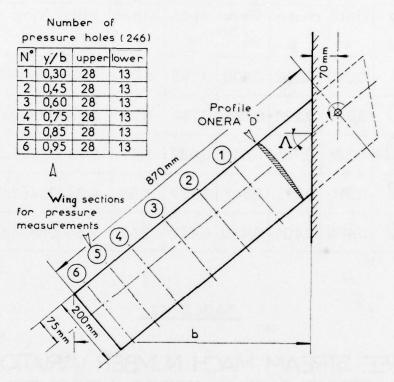
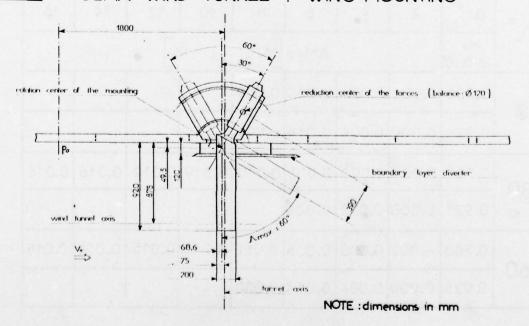
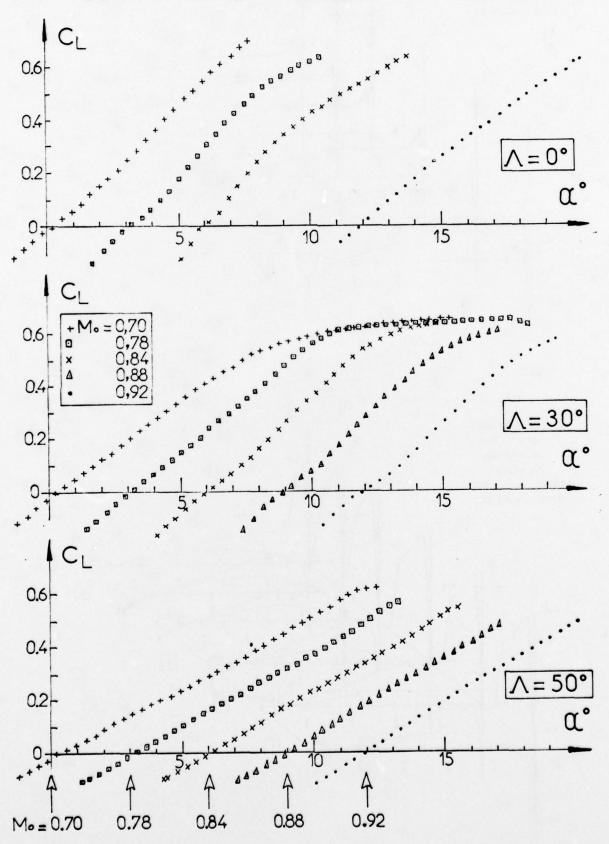
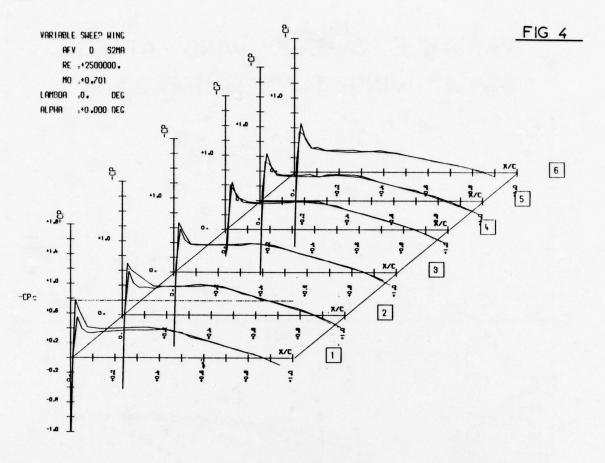


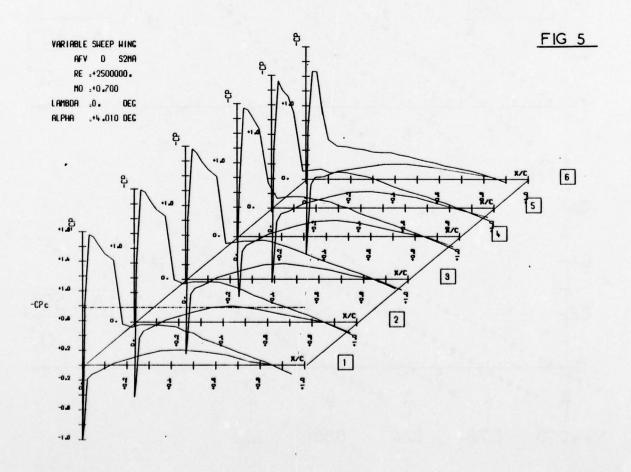
FIG 2 S2MA WIND TUNNEL : WING MOUNTING

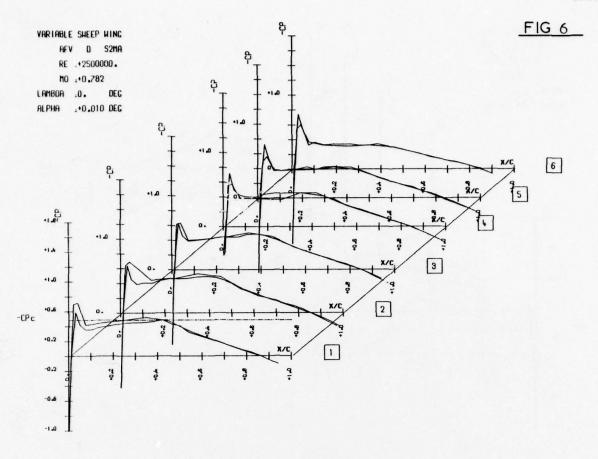


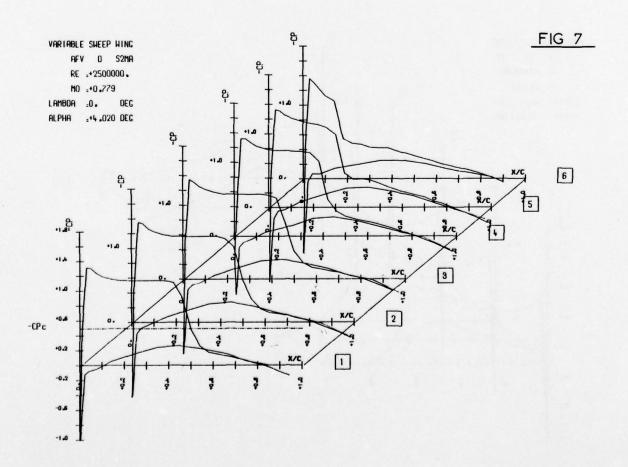
VARIABLE SWEEP WING AFV D
S2MA WIND TUNNEL Re = 2.5x106

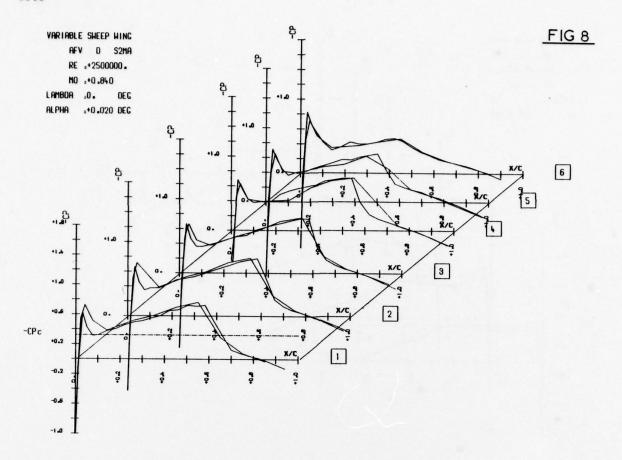


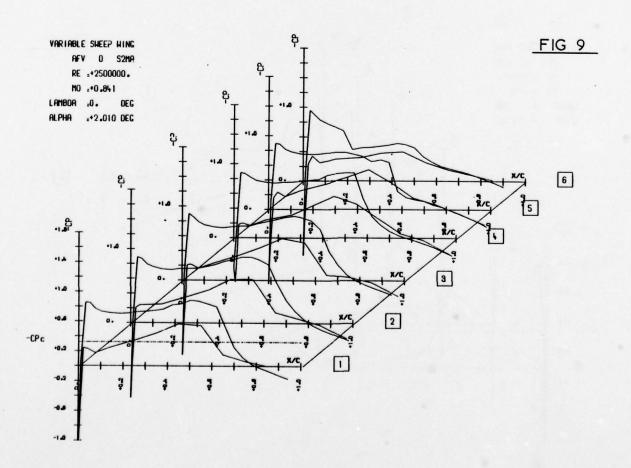


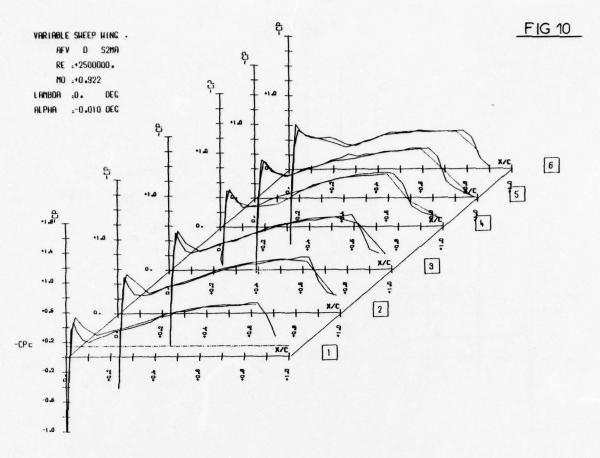


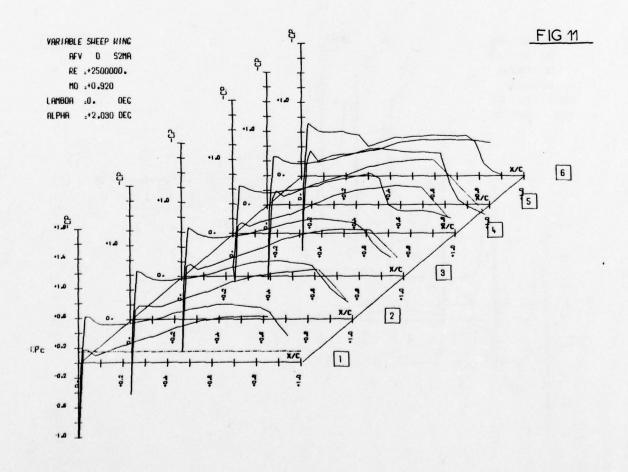


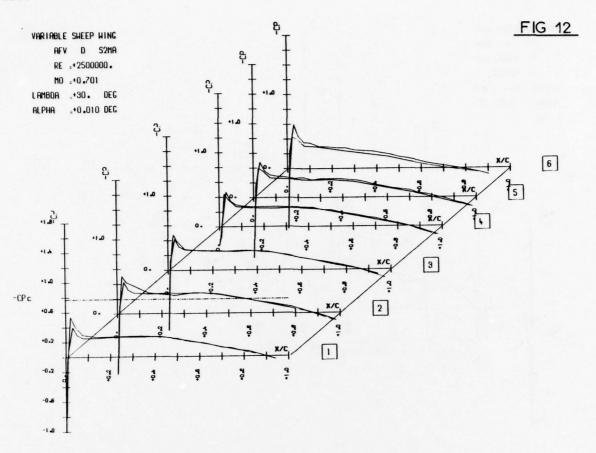


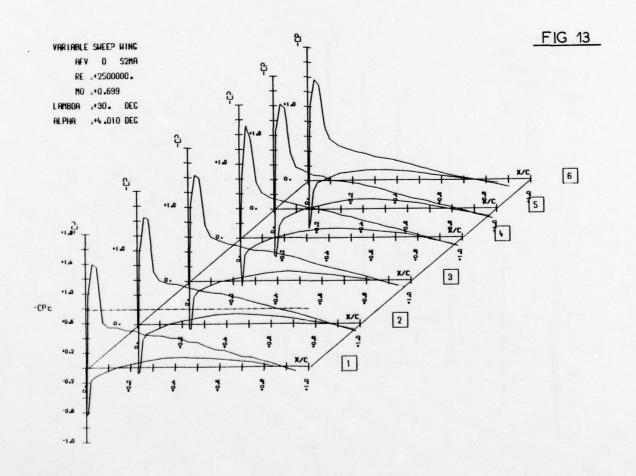


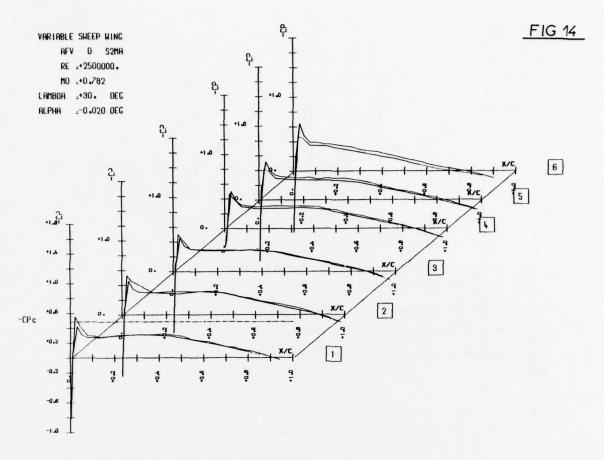


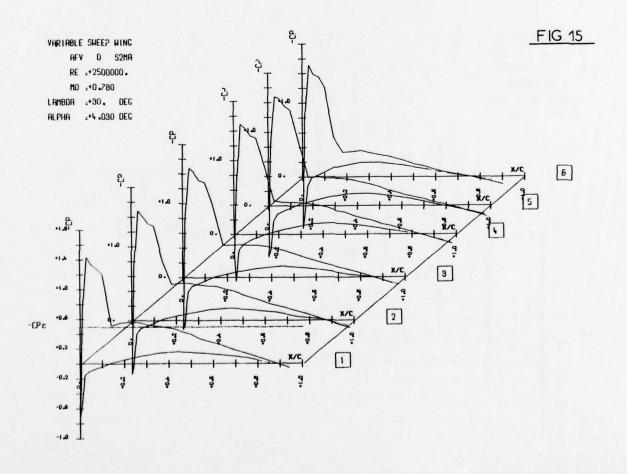


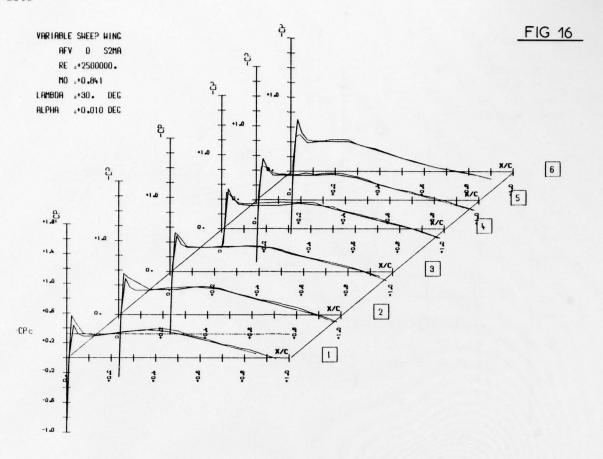


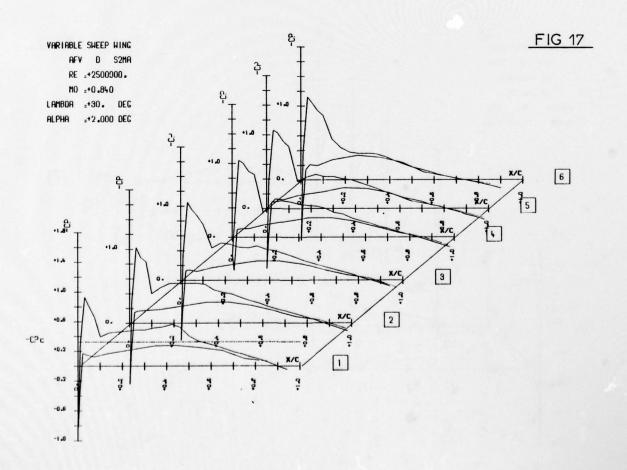


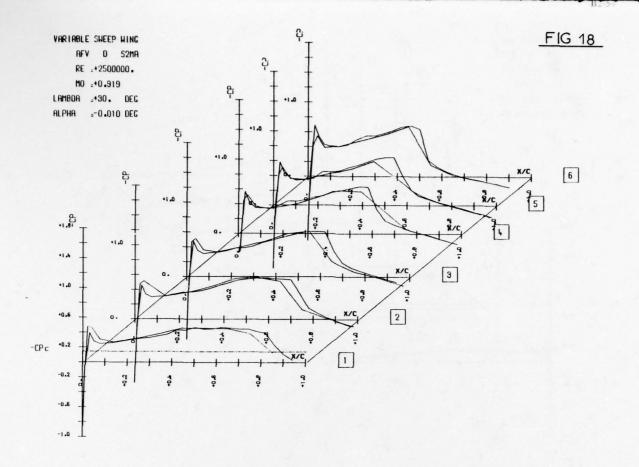


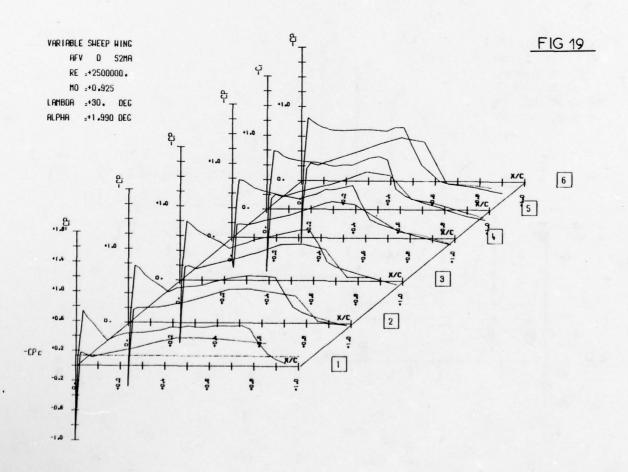


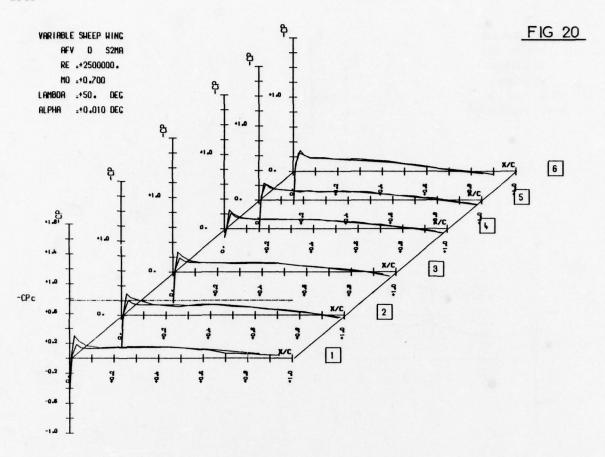


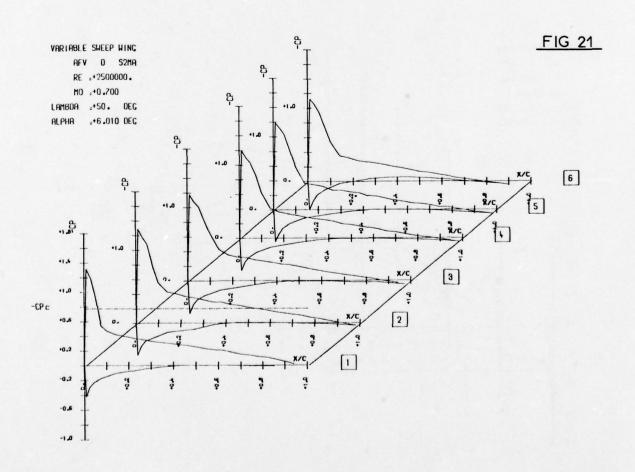


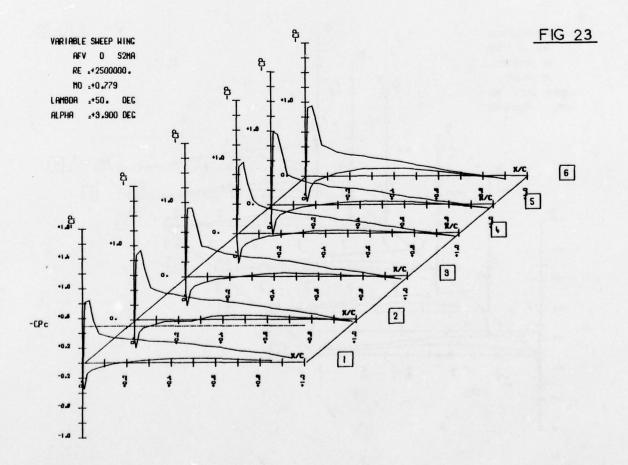


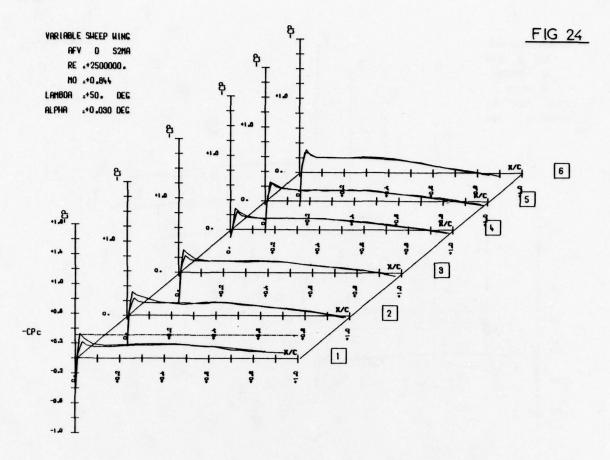


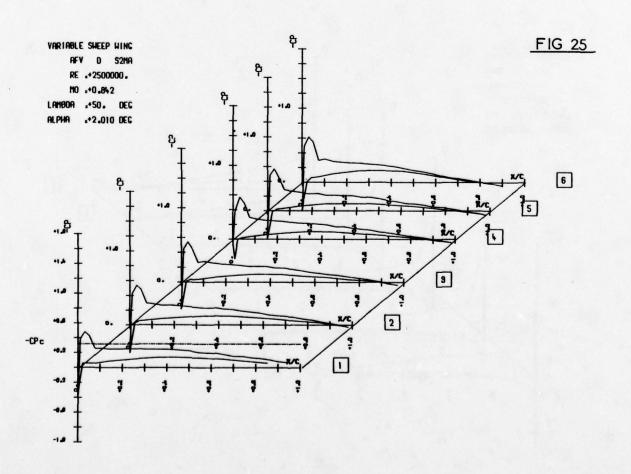


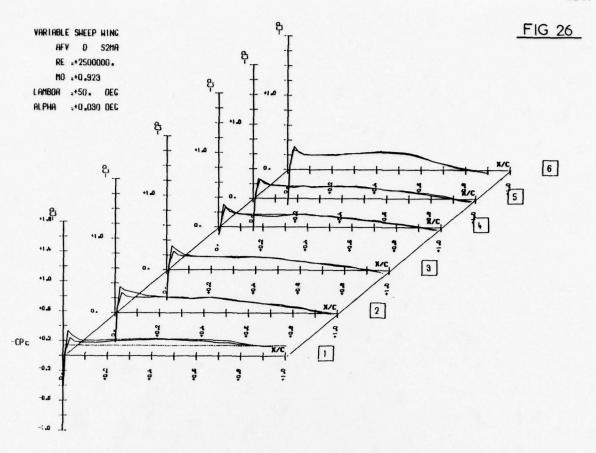


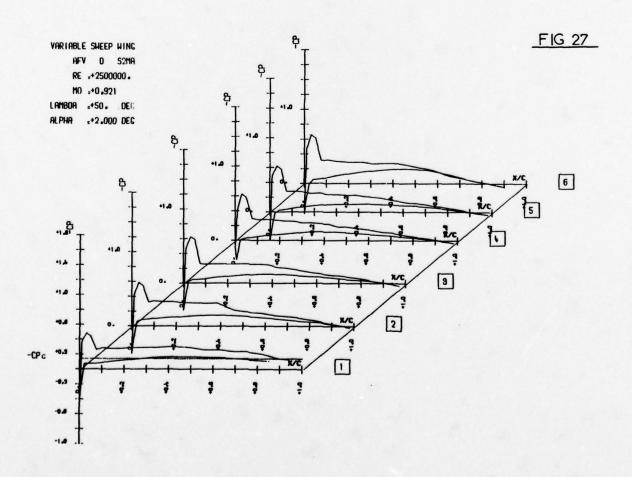












3. MBB-AVA Pilot-Model with Supercritical Wing - Surface Pressure and Force Measurements

H. Körner, W. Lorenz-Meyer, A. Heddergott

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V.

and

A. Eberle

Messerschmitt-Bölkow-Blohm GmbH, München

3.1 Introduction

These data contain pressure and force measurements on the MBB-AVA Pilot-Model which is a fighter type wing-body combination with a supercritical wing. The airfoil, incorporated in this wing is MBB-A3, an airfoil designed by the Eberle hodograph-method. Selected experimental results of this airfoil are given in contribution A8.

The measurements have been performed in the DFVLR 1x1 m Transonic Wind-Tunnel Göttingen.

The selected pressure data for this model contain an α sweep at M = 0.8 and a Mach number sweep for α = 2°. This gives a certain range of different supercritical flow types on the wing, including flows with extensive rear separations. Tests have shown that separation always begins at the trailing edge and first occurs at the wing tip. Leading edge vortex shedding has not been observed.

3.2 Data

1. General Description

| 1.1 | Model Designation or Name | MBB-AVA Pilot-Model with Supercritical Wing |
|-----|---|---|
| 1.2 | Model Type (e.g., Full Span Wing-Body, Semi-Span Wing) | Full span wing-body |
| 1.3 | Design Requirements/Conditions | Fighter-type wing-body combination with |

supercritical wing

1.4 Additional Remarks

Airfoil section perpendicular to leading edge is MBB-A3

See fig. 3.1

2. Model Geometry

2.1 Wing Data

| 2.1.1 | Wing Planform | Swept wing (see fig. 3.1 |
|-------|---------------|--------------------------|
| 2.1.2 | Aspect Ratio | 4.5 |

2.1.3 Leading-Edge Sweep 35°
2.1.4 Trailing-Edge Sweep 14.25°
2.1.5 Taper Ratio 0.33
2.1.6 Twist -3°

 2.1.7
 Mean Aerodynamic Chord
 0.11875 m

 2.1.8
 Span or Semispan
 0.4915 m (span)

 2.1.9
 Number of Airfoil
 1

Sections Used to Define Wing

2.1.10 Spanwise Location of The same airfoil section is used over the whole Reference Section and Section Coordinates (Note if Ordinates are Design or Actual Measured Values)

The same airfoil section is used over the whole wing, coordinates table 3.1, measured coordinates of wing table 3.2

2.1.11 Lofting Procedure Between Straight generators
Reference Sections

2.1.12 Form of Wing-Body Fillet, Strakes2.1.13 Form of Wing Tip See fig. 3.1

2.2 Body Data (Detail Description See fig. 3.1 and 3.2, table 3.3 of Body Geometry) 2.3 Wing-Body Combination 2.3.1 Relative Body Diameter ≅ 0.1 (Average Body Diameter at Wing Location Divided by Wing Span) Relative Vertical Location 2.3.2 ≅0.5 of Wing (Height Above or Below Axis Divided by Average Body Radius at Wing Location) 2° (see fig. 3.1) 2.3.3 Wing Setting Angle 2.3.4 Dihedral 2.4 Cross Sectional Area Development 2.5 Fabrication Tolerances/Waviness < 0.15 mm, measured coordinates are given in table 3.2 3. Wind Tunnel DFVLR 1x1 Meter Transonic Tunnel 3.1 Designation 3.2 Type of Tunnel 3.2.1 Continuous or Blowdown. Continuous, closed circuit Indicate Minimum Run Time if Applicable Variable between 0.4 and 1.6 bar 3.2.2 Stagnation Pressure ≃ 305 K Stagnation Temperature 3.2.3 3.3 Test Section 3.3.1 Shape of Test Section Square Size of Test Section 1m x 1m with usable length of 1.5 m 3.3.2 (Width, Height, Length) 3.3.3 Type of Test Section Walls Perforated Closed, Open, Slotted, Perforated) Open Area Ratio 6 % fixed porosity (Give Range if Variable) 30° slanted holes Slot/Hole Geometry (e.g., 30-Degree Slanted Holes) Treatment of Side Wall Boundary Layer Full span models None Half-model testing 3.4 Flow Field (Empty Test Section) 3.4.1 Reference Static Pressure Plenum chamber pressure ± 0.05° 3.4.2 Flow Angularity 3.4.3 Mach Number Distribution 0.5 0.8 0.006 0.005 0.015 3.4.4 Pressure Gradient in x: ΔM 0.003 in z: ΔM 0.003 0.0037 3M/3(x/c) Low noise level $(\sqrt{n \cdot F(n)} < 0.001)$. 3.4.5 Turbulence/Noise Level Measured on body of revolution NACA RM 12. Low turbulence level (measurements are in progress). 3.5 Freestream Mach Number (or Velocity) Transonic: M = 0.5 - 1.23.5.1 Range Supersonic: M = 1.33 - 2.2Pressure Used to Determine Transonic range: settling chamber total pressure/ Mach Number (e.g., Settling plenum chamber pressure Chamber Total Pressure and Plenum Chamber Pressure) 3.5.3 Accuracy of Mach Number $\Delta M = 0.003$ Determination (AM) Maximum Mach Number ± 0.001 3.5.4 Variation During a Run

| 2 0 | D 1 1 | NY 1 | D |
|-----|----------|--------|-------|
| 3.6 | Revnolds | Number | Kange |

- 3.6.1 Unit Reynolds Number Range (Give Range at Representative Mach Numbers; 1/m)
- Re = $5-25 \cdot 10^6 \text{ m}^1 \text{ for M} \ge 0.6$
- 3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization)
- Pressurization
- 3.7 Temperature Range and Dewpoint, Can Temperature be Controlled?
- Depends on ambient temperature, 243 °K no

- 3.8 Model Attitudes
 - 3.8.1 Angle of Attack,
 - 3.8.2 Accuracy in Determining Angles
- 360° ± 16° / +1° to 11° / 360° ± 0.02/ ± 0.1° / ± 0.1°
- 3.9 Organization Operating the Tunnel and Location of Tunnel
- DFVLR-AVA, Bunsenstraße 10 D-3400 Göttingen Germany (FRG)
- 3.10 Who is to be Contacted for Additional Information
- Dr.-Ing. W. Lorenz-Meyer Bunsenstraße 10, D-3400 Göttingen
- 3.11 Literature Concerning this Facility
- 11, 2, 3

3.12 Additional Remarks

4. Tests

4.1 Type of Tests

- Force, static pressure on wing
- 4.2 Wing Span or Semispan to Tunnel Width
- 0.4915

- 4.3 Test Conditions
 - 4.3.1 Angle of Attack
 - 4.3.2 Mach Number
 - 4.3.3 Dynamic Pressure
- 0.65 < M < 0.92

- 4.3.4 Reynolds Number
- Stagnation pressure const. \simeq 0.794 bar for all Mach numbers
- M = 0.65 M = 0.8 M = 0.88 M = 0.92

 $-2^{\circ} < \alpha < 8^{\circ}$

- Re = 1.12 10⁶
 Re = 1.26 10⁶
 Re = 1.32 10⁶
 Re = 1.34 10⁶
- Stagnation Temperature =
 - ≃ 305 K

- 4.3.5 Sta
 - 4.4.1 Free or Fixed

- Free
- 4.4.2 Position of Free Transition
- 4.4.3 Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements
- 4.4.4 Were Checks Made to Determine if Transition Occured at Trip Locations?
- Not determined

- 4.5 Bending or Torsion Under Load
 - 4.5.1 Describe Any Aeroelastic
 Measurements Made During Tests
 - 4.5.2 Describe Results of Any Bench Calibrations
- 4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes
- 4.7 Areas and Length Used to Form Coefficients
- 4.8 References on Tests
- 4.9 Related Reports

- Wing area 537.5 cm²
 Mean aerodynamic chord 11.88 cm
- |4|, |5|

5. Instrumentation

| 5 1 | Cumface | Dangauna | Measurements |
|-----|---------|----------|--------------|
| | | | |

- Pressure Orifices in Wing. Location and Number on Upper and Lower Surfaces
- Pressure Orifices on Fuselage. 5.1.2 Location and Number
- Pressure Orifices on Components, 5.1.3 Give Component and Orifice Location
- 5.1.4 Geometry of Orifices
- Type of Pressure Transducer and 5.1.5 Scanning Devices Used. Indicate Range and Accuracy

8 sections, 14 orifices for each section on upper side, 10 orifices on lower side (see fig. 3.1, table 3.4)

Circular, 0.3 mm diameter, some 0.5 mm

CEC 4-312 - 0002

Scanivalve Types d; J; S

±5 psi, ±0.4 %, Total arrangement ±0.7 %

5.2 Force Measurements

- 5.2.1 Type and Location of Balance
- Forces and Moments that Can be 5.2.2 Measured. Maximum Loads and Accuracy
- 5.2.3 Forces and Moments on Components Type and Location of Balance Maximum Loads and Accuracy

Task 1.5"C, internal balance

N = 2000 lb

X = 130 lb Y = 900 lb

900 lb

±0.65 %, total arrangement ±1.0 %

6. Data

6.1 Accuracy

6.1.1 Pressure Coefficients

6.1.2 Aerodynamic Coefficients

Boundary Layer and Wake 6.1.3 Quantities

6.1.4 Repeatability

6.1.5 Additional Remarks

Wall Interference Corrections

6.3 Data Presentation

6.3.1 Aerodynamic Coefficients

6.3.2 Surface Pressure Coefficients

Flow Conditions for

- Aerodynamic coefficient data

- Pressure data

+1% assuming the worst possible combination of errors including an error of AM = +0.002 evaluated at maximum |cp|

0.5 %

within 1 %

No corrections, see |6|

Table 3.14

Figure 3.12

Tables 3.5 - 3.13

Figures 3.3 - 3.11

| M | | | 0. | 8 | | |
|---|------|------|-----|----|-----|----|
| α | -2° | 00 | 20 | 4° | 6°. | 80 |
| М | 0.65 | 0.88 | 0.9 | 2 | | |
| α | | 20 | | 7 | | |

6.3.4 Boundary Layer and/or Wake Data

6.3.5 Flow Conditions for Boundary Layer and/or Wake Data

Wall Interference 6.3.6 Corrections Included?

Aeroelastic Corrections 6.3.7 Included?

Other Corrections? 6.3.8

Additional Remarks

polars for M = 0.8

| 1.1 | | | 0. | 0 | | |
|-----|------|------|------|----|-----|---|
| α | -2° | 00 | 20 | 4° | 6°. | 8 |
| М | 0.65 | 0.88 | 0.92 | 2 | | |
| α | | 20 | | | | |

No

No

No

6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base? No

7. References

|1| Ludwieg, H. Der Transsonische Windkanal der Aerodynamischen Versuchsanstalt Göttingen.
Schneider, W. Jahrbuch der WGLR 1966, pp. 145-244.

|2| Hottner, Th.
Lorenz-Meyer, W.

Der Transsonische Windkanal der Aerodynamischen Versuchsanstalt
Göttingen (2. Ausbaustufe).
Jahrbuch der DGLR 1968, pp. 235-244.

|3| Lorenz-Meyer, W. Test facilities of the DFVLR in the transonic and hypersonic speed range and main activities.

DLR-FB 71-86, 1971.

|4| Eberle, A. Experimentelle Untersuchungen überkritischer Profile und Tragflügel im Hochgeschwindigkeitsbereich. MBB-Rep. UFE 1153 (1975) and UFE 1153A (1976).

|5| Lorenz-Meyer, W. Druckverteilungs- und 3-Komponentenmessungen an dem AVA-Transsonik-Heddergott, A. DrvLR IB 251-76A19 (1976).

| 6 | Lorenz-Meyer, W. Kanalkorrekturen für den Transsonischen Windkanal der Aerodynamischen Versuchsanstalt Göttingen bei Messungen an 3-dim. Modellen.

ZFW 19 (1971), pp. 454-461.

8. List of Symbols

coordinates (fig. 3.1) x, y, z coordinates adjusted to chord line x', z' chord length angle of attack (versus fuselage center line) α angle of attack of section (versus fuselage center line) α_{TW} free-stream Mach number M ML local Mach number Reynolds number (based on mean aerodynamic chord) Re $^{\rm C}_{\rm P}$ pressure coefficient pressure coefficient at ML = 1 lift coefficient $^{\rm C}_{\rm L}$

CL lift coefficient

CD drag coefficient

CM pitching moment coefficient

F(n) frequency function

n reduced frequency
HS, S1 ... S7 designation of sections on wing
R1 ... R21 designation of sections on fuselage

Subscripts

u upper side

| x'/c | z'u/c | z¦/c | x'/c | z _u /c | z '/c |
|------------|------------|-------------|------------|-------------------|-------------|
| 0.0 | 0.0 | 0.0 | | | |
| 0.00250000 | 0.00982777 | -0.00381661 | 0.46764994 | 0.05168439 | -0.02804276 |
| 0.00750000 | 0.01565005 | -0.00595551 | 0.49289989 | 0.05071530 | -0.02692189 |
| 0.01250000 | 0.01924124 | -0.00724055 | 0.51819992 | 0.04953286 | -0.02552682 |
| 0.01750000 | 0.02197274 | -0.00830524 | 0.54094982 | 0.04828609 | -0.02407820 |
| 0.02250000 | 0.02418222 | -0.00916079 | 0.56139994 | 0.04701714 | -0.02266148 |
| 0.02750000 | 0.02603555 | -0.00988014 | 0.57984984 | 0.04575074 | -0.02132278 |
| 0.03250000 | 0.02763603 | -0.01051012 | 0.59639996 | 0.04451726 | -0.02009462 |
| 0.03750000 | 0.02905858 | -0.01107267 | 0.61134994 | 0.04332332 | -0.01897731 |
| 0.04250000 | 0.03034812 | -0.01158552 | 0.62500000 | 0.04216964 | -0.01795656 |
| 0.04799999 | 0.03165161 | -0.01211079 | 0.63684994 | 0.04111803 | -0.01707330 |
| 0.05404999 | 0.03297216 | -0.01266547 | 0.64774990 | 0.04010996 | -0.01626466 |
| 0.06070000 | 0.03430759 | -0.01326836 | 0.65754986 | 0.03917050 | -0.01554247 |
| 0.06804997 | 0.03566648 | -0.01392980 | 0.66729993 | 0.03820658 | -0.01483070 |
| 0.07609999 | 0.03703678 | -0.01464810 | 0.67809993 | 0.03710360 | -0.01405105 |
| 0.08494997 | 0.03840749 | -0.01542814 | 0.68994993 | 0.03585198 | -0.01321070 |
| 0.09469998 | 0.03979396 | -0.01627368 | 0.70294994 | 0.03443204 | -0.01231219 |
| 0.10539997 | 0.04118749 | -0.01718441 | 0.71729994 | 0.03280832 | -0.01135277 |
| 0.11719996 | 0.04258029 | -0.01816545 | 0.73304987 | 0.03096390 | -0.01034154 |
| 0.13014996 | 0.04396465 | -0.01920807 | 0.75039989 | 0.02886695 | -0.00928134 |
| 0.14439994 | 0.04532958 | -0.02031292 | 0.76949996 | 0.02649507 | -0.00818220 |
| 0.16009992 | 0.04666926 | -0.02147442 | 0.79049987 | 0.02383909 | -0.00705677 |
| 0.17734981 | 0.04795947 | -0.02267816 | 0.81354994 | 0.02091323 | -0.00591856 |
| 0.19634992 | 0.04918690 | -0.02391202 | 0.83894986 | 0.01773962 | -0.00477579 |
| 0.21719980 | 0.05032904 | -0.02514784 | 0.86434996 | 0.01468950 | -0.00374426 |
| 0.23999995 | 0.05135601 | -0.02634904 | 0.88719982 | 0.01204593 | -0.00291268 |
| 0.26544994 | 0.05225340 | -0.02749516 | 0.90779996 | 0.00973445 | -0.00224648 |
| 0.29074997 | 0.05290646 | -0.02841986 | 0.92629987 | 0.00770964 | -0.00171418 |
| 0.31599987 | 0.05333761 | -0.02911612 | 0.94204986 | 0.00601928 | -0.00130371 |
| 0.34129989 | 0.05355927 | -0.02957801 | 0.95539993 | 0.00460874 | -0.00098079 |
| 0.36654997 | 0.05357844 | -0.02979353 | 0.96674985 | 0.00342286 | -0.00072021 |
| 0.39184994 | 0.05339843 | -0.02975516 | 0.97809994 | 0.00224680 | -0.00046829 |
| 0.41709989 | 0.05302519 | -0.02945522 | 0.98944992 | 0.00107884 | -0.00022414 |
| 0.44239986 | 0.05245347 | -0.02888565 | 1.00000000 | 0.0 | 0.0 |

Table 3.1: Basic airfoil section (streamwise)

| x' | z' | x' | z' | x' | z' |
|---------|-------|---------|--------|---------|--------|
| mm | mm | mm | min | mm | mm |
| -) | | | | | |
| 1.888 | 2.865 | 109.950 | 4.808 | 103.480 | -2.172 |
| | | | 4.174 | 97.156 | -2.669 |
| 4.121 | 3.914 | 115.422 | | | |
| 6.355 | 4.625 | 122.042 | 3.456 | 91.700 | -3.108 |
| 9.082 | 5.254 | 129.682 | 2.724 | 86.976 | -3.471 |
| 12.724 | 5.863 | 133.107 | 2.332 | 77.725 | -4.064 |
| 15.797 | 6.253 | 136.195 | 1.996 | 73.929 | -4.272 |
| 19.513 | 6.642 | 138.969 | 1.696 | 66.350 | -4.556 |
| 24.003 | 7.076 | 143.330 | 1.220 | 62.554 | -4.629 |
| 26.588 | 7.300 | 146.723 | 0.814 | 58.764 | -4.660 |
| 32.565 | 7.687 | 146.676 | 0.095 | 51.180 | -4.590 |
| 35.985 | 7.847 | 144.973 | 0.087 | 47.379 | -4.489 |
| 43,599 | 8.068 | 143.270 | 0.072 | 39.806 | -4.181 |
| 47.386 | 8.122 | 138.905 | -0.030 | 35.990 | -3.972 |
| 54.969 | 8.158 | 136.130 | -0.138 | 29.446 | -3.574 |
| 58.764 | 8.142 | 133.042 | -0.290 | 24.010 | -3.204 |
| 66.348 | 8.030 | 129.617 | -0.445 | 17.575 | -2.741 |
| 70.136 | 7.928 | 125.814 | -0.786 | 12.734 | -2.372 |
| 81.133 | 7.408 | 122.009 | -1.037 | 9.096 | -2.066 |
| 86.966 | 7.006 | 118.556 | -1.247 | 5.619 | -1.730 |
| 93.739 | 6.457 | 112.545 | -1.604 | 2.613 | -1.301 |
| 100.084 | 5.873 | 107.581 | -1.902 | | |

Table 3.2a: Measured wing contour, left-hand side in flight direction, section HS (α_{TW} = 1.88°), see figure 3.1.

| x' | z' ' | x ' | z' | x' | 2' |
|---------|--------|--------|--------|---------|-------|
| mm ! | mm | mm | mm | mm | mm |
| 106.518 | -0.397 | 15.723 | -2.226 | 39.917 | 6.007 |
| 105.281 | -0.399 | 12.763 | -1.978 | 42.673 | 5.989 |
| 100.876 | -0.423 | 10.312 | -1.770 | 45.423 | 5.954 |
| 96.618 | -0.491 | 7.410 | -1.519 | 50.932 | 5.825 |
| 91.364 | -0.668 | 5.227 | -1.318 | 56.440 | 5.603 |
| 86.090 | -0.929 | 2.995 | -1.075 | 63.157 | 5.181 |
| 81.725 | -1.183 | 1.924 | 2.356 | 68.075 | 4.771 |
| 76.558 | -1.492 | 4.085 | 3.162 | 73.860 | 4.215 |
| 72.678 | -1.783 | 6.608 | 3.748 | 78.130 | 3.748 |
| 66.589 | -2.286 | 9.247 | 4.206 | 83.818 | 3.070 |
| 61.149 | -2.681 | 11.474 | 4.516 | 86.106 | 2.786 |
| 53.684 | -3.141 | 14.169 | 4.827 | 83.617 | 2.476 |
| 48.181 | -3.356 | 17.430 | 5.136 | 94.143 | 1.788 |
| 42.672 | -3.432 | 21.377 | 5.440 | 95.631 | 1.478 |
| 37.164 | -3.399 | 26.130 | 5.719 | 98.871 | 1.202 |
| 31.657 | -3.213 | 28.902 | 5.835 | 102.594 | 0.745 |
| 23.649 | -2.791 | 31.658 | 5.819 | 105.279 | 0.400 |
| 19.311 | -2.497 | 34.409 | 5.974 | | |
| | | | | | |

Table 3.2b: Measured wing contour, left-hand side in flight direction, section S4 $(\alpha_{TW}$ = 1.26°)

| x' mm | z' mm | x ' mm | z' mm | x ' mm | z' mm |
|-----------|-----------|-------------|-----------|-------------|-----------|
| 2.050 | 1.627 | 36.085 | 2.969 | 49.187 | -0.534 |
| 3.374 | 2.001 | 38.895 | 2.725 | 46.693 | -0.677 |
| 5.291 | 2.349 | 41.526 | 2.471 | 43.743 | -0.887 |
| 6.562 | 2.534 | 45.621 | 2.034 | 40.921 | -1.10? |
| 8.101 | 2.707 | 47.892 | 1.773 | 37.117 | -1.39 |
| 9.962 | 2.890 | 50.634 | 1.446 | 32.249 | -1.726 |
| 11.034 | 2.984 | 53.795 | 1.064 | 27.529 | -1.940 |
| 13.512 | 3.170 | 56.494 | 0.729 | 22.806 | -1.990 |
| 16.513 | 3.329 | 59.447 | 0.339 | 18.086 | -1.905 |
| 21.234 | 3.454 | 60.154 | -0.305 | 12.208 | -1.619 |
| 22.806 | 3.461 | 59.448 | -0.311 | 8.976 | -1.376 |
| 25.954 | 3.435 | 57.537 | -0.224 | 5.278 | -1.044 |
| 30.673 | 3.298 | 55.204 | -0.334 | 2.637 | -0.791 |
| 32.248 | 3.223 | 52.202 | -0.403 | 1.088 | -0.509 |

Table 3.2c: Measured wing contour, left-hand side in flight direction, section S7 (α_{TW} = -0.26°)

| x' | z' | x ' | 2 ' | x ' | z' |
|--------|-------|---------|--------|---------|--------|
| mm | mm | mm | mm | nim | mm |
| 0.272 | 1.539 | 89.453 | 6.870 | 122.006 | -0.977 |
| 1.084 | 2.390 | 91.696 | 6.697 | 118.551 | -1.150 |
| 1.867 | 2.897 | 95.523 | 6.374 | 115.402 | -1.325 |
| 3.368 | 3.610 | 100.090 | 5.934 | 109.936 | -1.652 |
| 4.866 | 4.119 | 103.487 | 5.563 | 105.425 | -1.956 |
| 8.102 | 4.962 | 107.589 | 5,100 | 98.616 | -2.434 |
| 10.197 | 5.396 | 112.553 | 4,501 | 93.734 | -2.787 |
| 12.728 | 5.833 | 118.567 | 3.743 | 89.444 | -3.088 |
| 15.797 | 6.253 | 122.023 | 3.301 | 84.192 | -3.447 |
| 17.571 | 6.427 | 125.830 | 2.816 | 81.126 | -3.651 |
| 21.650 | 6.855 | 129.637 | 2.337 | 73.919 | -4.086 |
| 24.003 | 7.078 | 133.059 | 1.910 | 66.345 | -4.363 |
| 29.436 | 7.534 | 135.148 | 1.567 | 58.763 | -4.467 |
| 32.562 | 7.748 | 138.922 | 1.262 | 54.969 | -4.481 |
| 35.982 | 7.917 | 143.283 | 0.766 | 47.387 | -4.390 |
| 39.801 | 8.050 | 144.982 | 0.565 | 39.807 | -4.153 |
| 43.598 | 8.141 | 148.379 | 0.142 | 35.990 | -3.975 |
| 47.385 | 8.213 | 146.683 | -0.258 | 29.444 | -3.598 |
| 51.181 | 8.269 | 144.981 | -0.275 | 24.007 | -3.243 |
| 54.970 | 8.291 | 143.278 | -0.292 | 21.653 | -3.074 |
| 58.766 | 8.276 | 141.276 | -0.319 | 17.572 | -2.768 |
| 62.555 | 8.215 | 138.914 | -0.366 | 14.197 | -2.494 |
| 66.351 | 8.114 | 136.139 | -0.439 | 10.200 | -2.149 |
| 70.138 | 7.974 | 133.051 | -0.540 | 5.622 | -1.697 |
| 73.925 | 7.804 | 129.625 | -0.665 | 3.372 | -1.385 |
| 77.720 | 7.611 | 125.815 | -0.815 | 1.882 | -1.117 |
| 84.201 | 7.232 | | | | |

Table 3.2d: Measured wing contour, right-hand side in flight direction, section HS (α_{TW} = 1.91 $^{\circ}$)

| x' mm | z' mm | x ' mm | z ' mm | x' mm | z ' mm |
|-----------|-----------|-------------|-------------|-----------|------------|
| 1.927 | 2.351 | 64.959 | 5.028 | 91.359 | -0.554 |
| 3.563 | 2.931 | 68.074 | 4.764 | 88.594 | -0.682 |
| 5.234 | 3.417 | 71.620 | 4.425 | 81.719 | -1.083 |
| 7.407 | 3.917 | 75.148 | 4.053 | 75.137 | -1.507 |
| 9.240 | 4.253 | 78.127 | 3.721 | 68.064 | -2.017 |
| 10.300 | 4.418 | 81.734 | 3.300 | 61.136 | -2.497 |
| 14.158 | 4.932 | 86.100 | 2.735 | 56.430 | -2.797 |
| 17.420 | 5.256 | 88.603 | 2.367 | 50.926 | -3.084 |
| 19.300 | 5.408 | 94.145 | 1.788 | 45.421 | -3.248 |
| 23.641 | 5.703 | 96.635 | 1.510 | 39.916 | -3.289 |
| 26.125 | 5.830 | 98.875 | 1.244 | 34.410 | -3.218 |
| 31.655 | 6.018 | 100.889 | 1.017 | 28.904 | -3.043 |
| 37.165 | 6.102 | 102.602 | 0.824 | 23.649 | -2.793 |
| 39.917 | 6.106 | 105.290 | 0.507 | 19.309 | -2.530 |
| 42.674 | 6.085 | 106.521 | 0.356 | 12.756 | -2.061 |
| 48.181 | 5.962 | 107.749 | -0.159 | 9.245 | -1.753 |
| 50.933 | 5.862 | 105.277 | -0.220 | 6.606 | -1.491 |
| 53.683 | 5.742 | 102.588 | -0.258 | 3.541 | -1.129 |
| 58.919 | 5.455 | 100.873 | -0.283 | 1.374 | -0.734 |
| 61.147 | 5.311 | 96.614 | -0.374 | | |

Table 3.2e: Measured wing contour, right-hand side in flight direction, section S4 ($\alpha_{\rm TW}$ = 1.30°)

| x' | z ' | x * | z' | x'. | z ' |
|--------|-------|--------|--------|--------|--------|
| mm | mm | nim | mm | mm | mm |
| 1.435 | 1.419 | 42.195 | 2.368 | 38.039 | -1.228 |
| 2.666 | 1.798 | 44.636 | 2.113 | 34.932 | -1.458 |
| 4.736 | 2.295 | 47.890 | 1.762 | 32.244 | -1.644 |
| 6.556 | 2.577 | 52.219 | 1.282 | 29.099 | -1.830 |
| 8.976 | 2.913 | 55.221 | 0.942 | 25.953 | -1.959 |
| 11.024 | 3.121 | 58.630 | 0.553 | 22.805 | -2.023 |
| 13.506 | 3.291 | 60.151 | -0.186 | 19.656 | -2.013 |
| 16.510 | 3.426 | 58.614 | -0.219 | 14.920 | -1.876 |
| 19.659 | 3.501 | 56.484 | -0.256 | 12.200 | -1.743 |
| 22.807 | 3.520 | 53.780 | -0.310 | 11.016 | -1.673 |
| 25.955 | 3.496 | 50.618 | -0.416 | 7.269 | -1.416 |
| 29.102 | 3.403 | 47.878 | -0.548 | 4.208 | -1.154 |
| 32.250 | 3.255 | 44.630 | -0.743 | 2.310 | -0.902 |
| 36.086 | 2.984 | 40.304 | -1.059 | 0.765 | -0.504 |
| 38.895 | 2.724 | | | | |

Table 3.2f: Measured wing contour, right-hand side in flight direction, section S7 ($\alpha_{\rm TW}$ = -0.18°)

| z mm | y [mm] | z (m) | y mm | z [mm] | A [ww] |
|---------|--------|---------|---------|---------|---------|
| -19.408 | 0.974 | -10.636 | 0.553 | -2.568 | 0.251 |
| -19.779 | 2.318 | -10.887 | 2.532 | -2.803 | 2.824 |
| -20.586 | 3.653 | -11.626 | 4.693 | -3.407 | 5.217 |
| -21.722 | 4.678 | -12.439 | 6.168 | -4.481 | 7.639 |
| -22.940 | 5.286 | -13.802 | 7.825 | -5.636 | 9.450 |
| -24.329 | 5.571 | -15.084 | 8.915 | -7.940 | 11.941 |
| -25.910 | 5.444 | -16.164 | 9.603 | -9.582 | 13.182 |
| -27.387 | 4.858 | -18.312 | 10.515 | -11.921 | 14.452 |
| -28.723 | 3.753 | -20.454 | 10.928 | -14.745 | 15.379 |
| -29.668 | 2.187 | -23.133 | 10.838 | -16.978 | 15.716 |
| -29.912 | 1.343 | -24.981 | 10.378 | -19.502 | 15.712 |
| -29.986 | -0.225 | -27.166 | 9.337 | -21.779 | 15.356 |
| -29.781 | -1.225 | -29.745 | 7.089 | -23.680 | 14.789 |
| -28.783 | -3.095 | -31.076 | 5.059 | -25.329 | 14.065 |
| -27.233 | -4.346 | -31.763 | 3.314 | -26.932 | 13.129 |
| -25.755 | -4.877 | -32-180 | 0.995 | -29.147 | 11.333 |
| -24.153 | -4.959 | -32.092 | -1.306 | -31.086 | 9.051 |
| -22.773 | -4.637 | -31.594 | -3.284 | -32.279 | 7.017 |
| -21.916 | -4.218 | -30.878 | -4.875 | -33.169 | 4.746 |
| -20.975 | -3.502 | -29.792 | -6.476 | -33.802 | 1.278 |
| -20.119 | -2.431 | -27.842 | -8.327 | -33.714 | -1.690 |
| -19.623 | -1.370 | -26.096 | -9.379 | -33.443 | -3.231 |
| | | -23.799 | -10.173 | -32.570 | -5.892 |
| | | -20.574 | -10.405 | -31.085 | -8.559 |
| Section | n P1 | -18.225 | -9.957 | -29.134 | -10.859 |
| 2600101 | I KI | -16.618 | -9.316 | -26.580 | -12.874 |
| | | -15.018 | -8.345 | -23.387 | -14.414 |
| | | -13.269 | -6.739 | -20.432 | -15.137 |
| | | -12.049 | -5.019 | -16.723 | -15.227 |
| | | -11.253 | -3.288 | -13.156 | -14.465 |
| | | -10.795 | -1.560 | -10.493 | -13.276 |
| | | | | -8.481 | -11.928 |
| | | | 200 | -6.388 | -9.932 |
| | | Section | n R2 | -4.649 | -7.491 |
| | | | | -3.490 | -5.008 |
| | | | | -2.779 | -2.302 |

Section R3

Table 3.3: Measured fuselage contour, see figure 3.2.

| - | 13 | 7 | • |
|---|----|---|---|
| | 13 | | |
| | | | |

| z [mm] | y [mm] | z mm | y mn | z mm | y mm | z mm | y !mm |
|--------------------|------------------|--------------------|--------------------|--------------------|------------------|--------------------|--------------------|
| | | | | 20.515 | 1.674 | -36.364 | 4.062 |
| 5.013 | 1.850 | -35.067 | 0.032 | 20.575 | 1.674 3.993 | -35.354 -35.641 | 4.052 0.387 |
| 4.482 | 5.094 | -34.659 | -3.751 | 19.526 | 6.684 | -35.248 | -4.094 |
| 3.193 | 8.653 | -33.518 | -7.455 | 18.039 | 9.897 | -34.424 | -7.285 |
| 1.688 | 11.307 | -31.740 | -10.763 | 16.072 | 12.936 | -32.866 | -10.915 |
| -1.059 | 14.574 | -29.393 | -13.655 | 13.548 | 15.659 | -28.824 | -16.395 |
| -3.314 | 16.443 | -26.694 | -16.000 | 10.260 | 18.227 | -26.247 | -18.578 |
| -5.876 | 17.993 | -22.855 | -18.160 | 7.155 | 20.039 | -22.440 | -20.782 |
| -7.518 | 18.738 | -18.998 | -19.357 | 4.332 | 21.276 | -18.349 | -22.163 |
| -10.217 | 19.599 | -16.121 -12.270 | -19.735 -19.577 | 1.165 | 22.234 | -14.346 | -22.721 |
| -13.659 -16.195 | 20.121 | -8.471 | -18.676 | -2.302 -6.172 | 22.827 23.074 | -9.005 -4.400 | -22.848 -22.785 |
| -20.067 | 19.505 | -5.316 | -17.312 | -9.912 | 23.098 | 0.508 | -22.254 |
| -23.210 | 18.415 | -2.705 | -15.594 | -14.321 | 22.986 | 4.721 | -21.017 |
| -26.091 | 16.833 | -0.749 | -13.831 | -17.899 | 22.551 | 7.973 | -19.459 |
| -28.499 | 14.955 | 1.501 | -11.074 | -21.654 | 21.436 | 11.376 | -17.248 |
| -30.800 | 12.485 | 2.855 | -5.838 | -24.694 | 19.909 | 14.828 | -14.130 |
| -32.636 | 9.598 | 3.894 | -6.501 -3.840 | -28.126 | 17.365 | 17.568 | -10.531 |
| -34.002 | 6.610 3.492 | 4.664 5.089 | -0.615 | -30.851 | 14.478 | 19.359 | -6.894 |
| -34.790 | 3.436 | 3.003 | | -33.010 -34.457 | 7.622 | 20.341 | -3.261 |
| | Sec | tion R4 | | -54.457 | Section R | 5 | |
| | | | | | Section K | , | |
| z lamil | y (mm) | z [mm.] | y (mm) | z [mm | y mm. | z mm | y mm |
| 36.285 | 1.386 | -35.680 | -0.576 | 46.011 | 3.208 | -35.774 | 0.835 |
| 35.758 | 4.537 | -35.355 | -4.042 | 44.928 | 7.869 | -35.553 | -3.751 |
| 34.870 | 7.280 | -34.733 | -6.886 | 43.167 | 11.815 | -34.869 | -7.325 |
| 33.568 | 10.022 | -33,466 | -10.420 | 40.725 | 15.342 | -33.189 | -11.746 |
| 31.432 | 13.285 | -31.253 | -14.345 | 36.879 | 18.978 | -31.383 | -14.751 |
| 28.988 | 15.983 | -27.850 -24.831 | -18.203 -20.562 | 34.055 | 20.812 | -28.559 -25.042 | -18.033 -20.892 |
| 25.146 23.216 | 18.293 | -20.927 | -22.583 | 32.569 29.417 | 21.559 22.756 | -21.324 | -22.839 |
| 19.921 | 21.582 | -16.885 | -23.692 | 25.252 | 23.722 | -17.235 | -24.000 |
| 16.954 | 22.575 | -11.970 | -24.143 | 21.271 | 24.194 | -12.121 | -24.437 |
| 13.313 | 23.410 | -8.326 | -24.240 | 16.767 | 24.433 | -7.671 | -24.490 |
| 9.542 | 23.910 | -4.446 | -24.293 | 11.287 | 24.507 | -2.835 | -24.491 |
| 4.933 | 24.193 | 0.328 5.225 | -24.281 -24.122 | 6.632 | 24.515 | 2.952 | -24.479 |
| -0.149 -5.167 | 24.324 | 9.838 | -23.783 | 1.269 | 24.530 24.540 | 8.839 13.369 | -24.463 -24.449 |
| -9.461 | 24.336 | 14.142 | -23.176 | -4.219 -9.976 | 24.519 | 18.714 | -24.350 |
| -14.394 | 24.091 | 18.882 | -21.912 | -14.207 | 24.376 | 24.657 | -23.835 |
| -18.832 | 23.332 | 22.181 | -20.552 | -18.542 | 23.730 | 28.964 | -22.851 |
| -23.139 | 21.633 | 25.126 | -18.901 | -21.456 | 22.746 | 32.766 | -21.340 |
| -26.738 | 19.356 | 27.187 | -17.439 | -24.838 | 20.953 | 36.317 | -19.204 |
| -29.352 -32.334 | 16.922 12.878 | 29.870 31.952 | -15.037 -12.584 | -27.914 | 18.598 | 39.671 41.773 | -15.246 -13.682 |
| -34.204 | 8.939 | 34.213 | -8.837 | -30.643 -32.535 | 15.676 12.879 | 44.061 | -9.783 |
| -35.165 | 5.675 | 35.764 | -4.652 | -33.825 | 10.324 | 45.449 | -6.020 |
| -35.604 | 2.698 | 36.314 | -1.204 | -35.085 | 6.636 | 46.177 | -1.419 |
| | Sec | tion R6 | | | Section R7 | 7 | |
| | | | | • 1=1 | w 1-m1 | | u leel |
| z mm | y [mn] | z mm | y [mm] | z [ma] | y mm | z mm | y [nm] |
| | | | | 47.137 | 1.652 | -35.860 | 2.814 |
| 48.396 | 4.210 | -35.165 | -7.102 | 46.951 | 6.245 | -35.865 | -0.008 |
| 47.798 | 8.025 | -33.968 | -10.704 | 46.196 | 10.277 | -35.844 | -3.399 |
| 46.516 | 12.226 | -32.241 | -13.922 | 44.163 | 15.747 | -35.574 | -6.133 |
| 44.612 | 16.053 | -29.203 | -17.718 | 41.673 | 19.370 | -34.745 | -9.239 |
| 41.204 38.540 | 20.113 | -25.355 -21.040 | -20.888 -23.067 | 38.376 | 22.124 | -33.393 | -12.363 |
| 31.620 | 24.237 | -16.578 | -24.143 | 37.490 34.524 | 22.637 23.853 | -30.935 -28.542 | -16.122 -13.653 |
| 25.920 | 24.542 | -11.811 | -24.434 | 30.751 | 24.491 | -23.309 | -22.192 |
| 20.625 | 24.559 | -6.361 | -24.467 | 26.199 | 24.554 | -18.567 | -23.916 |
| 14.802 | 24.535 | 0.112 | -24.465 | 22.265 | 24.557 | -13.484 | -24.458 |
| 8.070 | 24.533 | 5.629 | -24.457 | 17.871 | 24.556 | -8.301 | -24.457 |
| 2.568 | 24.537 | 10.730 | -24.458 -24.463 | 12.921 | 24.554 | -2.973 | -24.457 |
| -2.237 -7.714 | 24.536 24.531 | 16.544 23.192 | -24.463 | 7.739 | 24.553 | 3.749 | -24.456 |
| -13.590 | 24.439 | 28.860 | -24.434 | 2.246 | 24.553 24.553 | 9.493 | -24.455 -24.455 |
| -19.061 | 23.666 | 35.049 | -23.469 | -8.610 | 24.549 | 22.250 | -24.452 |
| -23.393 | 21.956 | 39.586 | -21.204 | -13.150 | 24.537 | 28.367 | -24.443 |
| -27.668 | 19.071 | 43.276 | -17.735 | -16.995 | 24.253 | 33.590 | -24.040 |
| -31.446 | 14.974 | 45.905 | -13.632 | -22,564 | 22.580 | 37.486 | -22.605 |
| -33.942 -35.409 | 10.584 5.948 | 47.418 48.310 | -9.816 -5.670 | -26.158 -29.322 | 20.550 17.914 | 41.073 43.480 | -19.961 -16.927 |
| -35.815 | 1.788 | 48.613 | -0.980 | -32.321 | 14.201 | 45.368 | -12.997 |
| -35.767 | -2.380 | | | -34.233 | 10.549 | 46.600 | -8.583 |
| | | | | -35.334 | 7.260 | 47.122 | -3.957 |
| | Sect | ion R8 | | | Section R9 | | |

Table 3.3 continued: Measured fuselage contour

and the contraction of the deal of the standard of the standar

| | y [mm] | z [mm] | y mm | z [men [| y mm | 2 (mm) | y mm |
|--|---|--|--|---|--|---|---|
| 45.587 | 6.094 | -35.787 | -4.242 | 44.406 | 2.439 | -35.689 | 0.358 |
| 44.950 | 9.682 | -34.521 | -10.340 | 44.212 | 6.409 | -35.737 | -4.160 |
| 2.843 | 15.521 | -32.007 | -15.098 | 43.372 | 10.582 | -35.034 | -9.290 |
| 38.870 | 20.670 | -28.893 | -18.728 | 41.790 | 14.967 | -32.933 | -14.031 |
| 5.430 | 22.893 | -24.993 | -21.591 | 39.615 | 18.510 | -30.062 | -17.933 |
| 34.320 | 23.357 | -20.854 | -23.437 | 35.715 | 21.972 | -26.758 | -20.807 |
| 29.579 | 24.423 | -16.122 | -24.426 | 32.927 | 23.363 | -22.104 | -23.219 |
| 25.606 | 24.473 | -11.111 | -24.476 | 28.870 | 24.337 | -16.673 | -24.464 |
| 20.941 | 24.485 | -6.139 | -24.477 | 22.680 | 24.446 | -8.803 | -24.500 |
| 14.957 | 24.523 | -0.481 | -24.473 | 17.325 | 24.496 | -1.963 | -24.497 |
| 8.459 | 24.520 | 5.944 | -24.472 | 11.532 | 24.495 | 4.432 | -24.492 |
| 1.974 | 24.519 | 11.713 | -24.473 | 5.016 | 24.495 | 11.247 | -24.490 |
| -4.130 | 24.519 | 17.580 | -24.472 | -0.954 | 24.494 | 17.040 | -24.490 |
| 10.188 | 24.518 | 23.915 | -24.472 | -7.232 | 24.493 | 23.292 | -24.517 |
| 16.158 | 24.415 | 30.002 | -24.422 | | 24.493 | | |
| | | 35.709 | | -13.689 | | 28.487 | -24.475 |
| 21.624 | 23.188 | | -22.894 | -19.501 | 23.971 | 32.507 | -23.667 |
| 29.367 | 18.292 | 39.656 | -20.005 | -24.524 | 22.137 | 36.517 | -21.647 |
| 32.930 | 13.660 | 43.167 | -15.068 | -28.287 | 19.630 | 38.734 | -19.711 |
| 34.878 | 9.409 | 44.860 | -10.249 | -31.029 | 16.803 | 41.117 | -16.495 |
| 35.725 | 5.337 | 45.713 | -4.944 | -33.618 | 12.867 | 43,003 | -12.115 |
| 35.796 | 1.696 | 45.773 | -0.121 | -34.996 | 9.530 | 44.132 | -7.355 |
| | Section | R10 | | -35.675 | 6.015 Section | 44.408 n. R11 | -2.85 |
| | | | | | | | |
| z imni | y [mm] | z [mm] | y mm | z [mir] | y nen | Z nen | У |
| | | | | 41.424 | 2.288 | -35,752 | 4.5 |
| 43,054 | 2.599 | -35.664 | -2.792 | 41.195 | 5.876 | -35.756 | 1.5 |
| 42.562 | 8.188 | -35.412 | -8.025 | 40.610 | 9.425 | -35.960 | -1.9 |
| | | | -14.275 | 39.745 | 12.796 | -35.763 | -5.3 |
| 41.196 | 13.232 | -33.080 | | 38.649 | 15.441 | -35.261 | -9.8 |
| 39.048 | 17.480 | -29.953 | -18.450 | | | | |
| 35.961 | 20.887 | -26.378 | -21.374 | 37.300 | 17.679 | -34.371 | -12.4 |
| 32.576 | 23.000 | -21.966 | -23.461 | 35.459 | 19.951 | -33.270 | -14.6 |
| 31.304 | 23.519 | -17.354 | -24.478 | 33.488 | 21.612 | -31.584 | -17.1 |
| 25.833 | 24.446 | -11.273 | -24.524 | 30.938 | 23.055 | -29.699 | -19.2 |
| 19.496 | 24.483 | -5.496 | -24.524 | 27.654 | 24.125 | -26.857 | -21.4 |
| 13.512 | 24.482 | 1.952 | -24.521 | 24.840 | 24.478 | -23.510 | -23.1 |
| 5.072 | 24.481 | 9.169 | -24.518 | 20.569 | 24.507 | -19.626 | -24.2 |
| -1.462 | 24.482 | 15.909 | -24.516 | 14.911 | 24.505 | -16.212 | -24.5 |
| -7.798 | 24.478 | 22.814 | -24.505 | 10.162 | 24.504 | -11.778 | -24.4 |
| -13.861 | 24.477 | 27.716 | -24.376 | 6.715 | 24.504 | -5.956 | -24.5 |
| 19.308 | 24.093 | 31.602 | -23.500 | 1.938 | 24.505 | -0.743 | -24.5 |
| | | | | -2.105 | 24.505 | 4.562 | -24.5 |
| 23.539 | 22.828 | 34.740 | -21.850 | -7.306 | 24.502 | 9.553 | -24.4 |
| 27.162 | 20.821 | 37.303 | -19.694 | -13.739 | 24.498 | 14.088 | -24.4 |
| 31.893 | 16.053 | 40.029 | -15.922 | | | | |
| 34.192 | 12.054 | 41.796 | -11.540 | -18.632 | 24.356 | 17.699 | -24.4 |
| 35.462 | 7.857 | 42.868 | -6.451 | -23.856 | 23.024 | 22.311 | -24.4 |
| 35.653 | 2.989 | 43.052 | -2.229 | -27.970 | 20.714 | 26.783 | -24.2 |
| | | | | -31.323 | 17.450 | 30,917 | -23.1 |
| | Section | R12 | | -33.180 | 14.811 | 34.363 | -21.2 |
| | | | | -34.469 | 12.282 | 36.930 | -18.3 |
| | | | | -35.297 | 9.821 | 38.561 | -15.7 |
| | | | | -35.715 | 7.175 Section | 40.045 R1.3 | -12.2 |
| 2 [m] | y [mm] | z mm | y ma | z (max) | A um | z mm | A (ww/ |
| | 3.305 | -35.586 | -4.203 | 35.671 | 0.490 | -35.404 | -1.562 |
| 37.060 | 6.166 | -35.465 | -9.270 | 35.656 | 4.107 | -35.409 | -5.848 |
| | 6.100 | -33.403 | | | | 25 224 | -10.114 |
| 36.906 | 9.346 | -34.754 | -12.725 | 35.303 | 8.015 | -35.374 | |
| 36.906 36.349 | 9.346 | -34.754 | -12.725 -15.265 | | 8.015 11.329 | -35.374 | -14.092 |
| 36.906 36.349 35.619 | 9.346 11.979 | -34.754 -33.669 | -15.265 | 34.500 | 11.329 | | |
| 36.906 36.349 35.619 34.411 | 9.346 11.979 14.898 | -34.754 -33.669 -31.987 | -15.265 -17.929 | 34.500 33.518 | 11.329 14.102 | -34.412 | -14.092 |
| 36.906 36.349 35.619 34.411 33.108 | 9.346 11.979 14.898 17.344 | -34.754 -33.669 -31.987 -29.335 | -15.265 -17.929 -20.698 | 34.500 33.518 32.262 | 11.329 14.102 16.537 | -34.412 -33.094 -31.069 | -14.092 -16.701 -19.407 |
| 36.906 36.349 35.619 34.411 33.108 31.425 | 9.345 11.979 14.898 17.344 19.464 | -34.754 -33.669 -31.987 -29.335 -26.827 | -15.265 -17.929 -20.698 -22.393 | 34.500 33.518 32.262 30.701 | 11.329 14.102 16.537 18.845 | -34.412 -33.094 -31.069 -28.794 | -14.092 -16.701 -19.407 -21.431 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 | 9.345 11.979 14.898 17.344 19.464 21.247 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 | -15.265 -17.929 -20.698 -22.393 -23.797 | 34.500 33.518 32.262 30.701 28.852 | 11.329 14.102 16.537 18.845 20.700 | -34.412 -33.094 -31.069 -28.794 -25.952 | -14.092 -16.701 -19.407 -21.431 -23.065 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 | 34.500 33.518 32.262 30.701 28.852 26.127 | 11.329 14.102 16.537 18.845 20.700 22.529 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 |
| 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 | 34.500 33.518 32.262 30.701 28.852 26.127 22.335 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 |
| 36.906 36.349 35.619 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 24.506 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 -24.500 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 -24.501 -24.500 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 10.861 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 24.506 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 -24.500 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 10.861 6.262 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.499 24.499 24.499 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 -24.501 -24.500 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 10.861 6.262 0.738 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 24.506 24.499 24.499 24.497 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.499 -24.500 -24.499 -24.500 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 | 11.329 14.102 16.587 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.459 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 |
| 36.906 36.349 35.619 34.411 33.108 33.108 33.1425 29.432 26.882 22.927 20.058 17.489 14.396 10.861 6.61 6.626 0.738 -3.377 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 74.478 24.489 24.506 24.499 24.497 24.498 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 -24.500 -24.500 -24.500 -24.500 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 | 11.329 14.102 16.597 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.499 24.498 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.496 |
| 36.906 36.349 35.619 35.619 33.108 31.425 29.432 29.432 21.927 20.058 17.489 10.861 6.262 0.738 -3.377 -8.734 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 24.506 24.499 24.499 24.497 24.498 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 -24.500 -24.499 -24.500 -24.499 -24.499 -24.491 -24.471 -24.403 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.500 24.459 24.498 24.494 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 15.332 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.499 -24.499 -24.499 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 6.262 0.738 -3.377 -8.734 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.499 24.499 24.499 24.499 24.499 24.498 24.498 24.496 24.492 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.500 -24.499 -24.499 -24.498 -24.471 -24.403 -23.355 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.459 24.498 24.494 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 15.332 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.499 -24.496 -24.496 -24.496 -24.496 |
| 36.906 36.349 35.619 34.411 33.108 33.425 29.432 26.882 22.927 20.058 17.489 14.356 10.861 6.262 0.738 -3.777 -8.734 14.417 18.737 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 :4.478 24.489 24.499 24.499 24.499 24.499 24.498 24.498 24.498 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.499 -24.499 -24.499 -24.499 -24.499 -24.493 -24.471 -24.403 -33.355 -21.741 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 | 11.329 14.102 16.587 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.459 24.498 24.498 24.498 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 15.332 19.806 24.116 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 -24.500 -24.500 -24.500 -24.500 -24.499 -24.494 -24.495 -24.495 -24.454 -23.537 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 29.432 22.927 20.058 17.449 14.356 10.861 6.262 0.0738 -3.377 -8.734 14.417 48.737 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 24.499 24.499 24.497 24.498 24.496 24.496 24.492 24.488 23.713 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 31.804 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.499 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.71 -24.403 -23.355 -21.741 -19.269 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 -26.816 | 11.329 14.102 16.597 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.498 22.494 24.494 22.666 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 -3.468 -7.169 -11.241 -15.332 -19.806 -24.116 -27.580 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.496 -24.496 -24.495 -24.495 -24.495 -24.495 -24.501 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 29.432 22.927 20.058 17.449 14.356 10.861 6.262 0.0738 -3.377 -8.734 14.417 48.737 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.489 24.499 24.499 24.497 24.498 24.496 24.492 24.488 23.713 21.413 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 31.804 34.006 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.710 -24.499 -24.498 -24.471 -24.403 -23.355 -21.741 -19.269 -16.084 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 -26.816 -30.424 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.498 24.498 24.494 24.495 24.149 22.666 20.056 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 -3.468 -7.169 -11.241 -15.332 -19.806 -24.116 -27.580 -30.520 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.496 -24.496 -24.495 -24.537 -21.713 -19.093 |
| 36.906 36.349 35.619 35.619 35.619 34.411 33.108 31.425 29.432 29.432 29.27 20.058 17.489 14.356 10.861 6.262 0.738 10.737 1 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.489 24.499 24.499 24.497 24.498 24.496 24.496 24.492 24.488 23.713 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 31.804 34.006 35.511 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.500 -24.499 -24.499 -24.498 -24.471 -24.403 -23.355 -21.741 -19.269 -16.084 -12.559 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 -26.816 -30.424 -33.265 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.501 24.502 24.499 24.499 24.495 24.149 22.666 20.056 16.349 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 15.332 19.806 24.116 27.580 30.520 32.590 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.496 -24.496 -24.496 -24.496 -24.496 -24.496 -24.496 -24.496 -24.496 -24.601 -24.501 -24.600 -26.600 -26.600 -26.600 -26.600 -26.600 -26.600 -26.600 -26 |
| 36.906 36.349 35.619 35.619 35.619 34.411 33.108 331.425 29.432 26.882 22.927 20.058 17.499 14.356 10.861 6.262 0.738 -3.377 31.371 38.737 23.713 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.489 24.499 24.499 24.497 24.498 24.496 24.492 24.488 23.713 21.413 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 31.804 34.006 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.500 -24.710 -24.499 -24.498 -24.471 -24.403 -23.355 -21.741 -19.269 -16.084 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 -26.816 -30.424 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.498 24.498 24.494 24.495 24.149 22.666 20.056 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 15.382 19.806 24.116 27.580 30.520 32.590 33.871 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 -24.500 -24.500 -24.499 -24.496 -24.496 -24.495 -24.495 -24.495 -24.631 -19.093 -16.068 -13.195 |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 10.861 6.262 0.738 -3.377 -8.734 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 24.478 24.499 24.499 24.499 24.499 24.499 24.498 24.496 24.492 24.488 23.713 21.413 18.757 | -34.754 -33.669 -31.987 -29.335 -26.827 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 31.804 34.006 35.511 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.500 -24.499 -24.499 -24.498 -24.471 -24.403 -23.355 -21.741 -19.269 -16.084 -12.559 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 -26.816 -30.424 -33.265 | 11.329 14.102 16.537 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.498 22.494 24.494 24.149 22.666 20.056 16.349 13.636 10.531 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 -3.468 -7.169 -11.241 -15.332 -19.806 -24.116 -27.580 -30.520 -32.590 -33.871 -34.893 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.501 -24.500 -24.500 -24.496 -24.496 -24.496 -24.495 -24.496 -24.496 -24.500 -24.500 -24.500 -24.500 -24.500 -24.99 -25.90 -26.90 - |
| 36.906 36.349 35.619 34.411 33.108 31.425 29.432 26.882 22.927 20.058 17.489 14.356 10.861 6.262 0.738 -3.377 -8.734 14.417 18.737 23.713 23.713 23.713 | 9.346 11.979 14.898 17.344 19.464 21.247 22.817 24.202 :4.478 24.489 24.499 24.499 24.499 24.499 24.498 23.713 21.413 18.757 15.952 | -34.754 -33.669 -31.987 -29.335 -26.627 -23.491 -20.361 -16.761 -12.344 -7.145 -1.296 4.361 9.444 13.938 19.411 23.239 26.430 29.042 31.804 34.006 35.511 36.453 | -15.265 -17.929 -20.698 -22.393 -23.797 -24.445 -24.498 -24.500 -24.500 -24.500 -24.499 -24.500 -24.499 -24.499 -24.491 -24.403 -23.355 -21.741 -19.269 -16.084 -12.559 -9.155 | 34.500 33.518 32.282 30.701 28.852 26.127 22.335 18.965 15.184 10.731 6.216 1.845 -2.411 -7.202 -13.550 -18.222 -22.613 -26.816 -30.424 -33.265 -34.583 | 11.329 14.102 16.587 18.845 20.700 22.529 24.070 24.479 24.502 24.501 24.502 24.500 24.498 24.498 24.498 24.495 24.149 22.666 20.056 16.349 13.636 | -34.412 -33.094 -31.069 -28.794 -25.952 -23.273 -19.775 -15.600 -11.482 -7.259 -2.673 3.468 7.169 11.241 15.382 19.806 24.116 27.580 30.520 32.590 33.871 | -14.092 -16.701 -19.407 -21.431 -23.065 -24.021 -24.503 -24.499 -24.499 -24.500 -24.500 -24.499 -24.496 -24.496 -24.495 -24.495 -24.495 -24.631 -19.093 -16.068 -13.195 |

Section R14 Section R15
'Table 3.3 continued: Measured fuselage contour

| | 2 [mm] | y [mm] | z mm | y mm | 2 (40) | y [mm] | z mm | y mm | |
|---|---|---|---|--|---|--|---|--|---|
| | 34.353 | 2.742 | -35.332 | -7.942 | 33.007 | 3.331 | -35.241 | -0.986 | |
| | 34.116 | 6.982 | -35.035 | -12.568 | 32.733 | 7.429 | -35.249 | -6.792 | |
| | 33.321 | 10.792 | -33.250 | -16.332 | 31.891 | 11.033 | -35.130 | -12.150 | |
| | 31.967 | 14.581 | -31.817 | -18.904 | 30.656 | 14.463 | -34.021 | -15.728 | |
| | 30.008 | 18.003 | -29.697 | -21.040 | 29.317 | 17.065 | -32.295 | -18.663 | |
| | 27.916 | 20.345 | -27.347 | -22.595 | 27.802 | 19.106 | -29.600 | -21.438 | |
| | 25.558 | 22.138 | -24.288 | -23.878 | 25.230 | 21.475 | -25.386 | -23.687 | |
| | 22.932 | 23.450 | -20.913 | -24.489 | 22.460 | 23.088 | -22.318 | -24.408 | |
| | 19.531 | 24.331 | -16.882 | -24.498 | 19.430 | 24.102 | -18.112 | -24.497 | |
| | 14.454 | 24.502 | -12.808 | -24.497 | 15.308 | 24.501 | -13.570 | -24.497 | |
| | 9.821 | 24.501 | -8.157 | -24.498 | 10.344 | 24.503 | -9.432 | -24.498 | |
| | 5.006 | 24.500 | -3.900 | -24.498 | 5.459 | 24.502 | -4.972 | -24.498 | |
| | 1.211 | 24.496 | 0.515 | -24.497 | 1.238 | 24.498 | -0.524 | -24.498 | |
| | -3.979 | 24.500 | 5.601 | -24.496 | -2.991 | 24.502 | 4.236 | -24.497 | |
| | -8.567 | 24.498 | 9.956 | -24.495 -24.493 | -7.099 | 24.500 | 9.515 | -24.495 | |
| | -13.832 | 24.495 | 14.708 | -24.368 | -11.178 | 24.497 | 15.055 | -24.496 | |
| | -19.789 | 24.492 | 19.209 | -24.368 | -15.860 | 24.496 | 19.703 | -24.064 | |
| | -24.465 | 23.811 | 23.391 27.237 | -23.276 | -19.682 | 24.495 | 23.545 | -22.583 | |
| | -27.823 | 22.379 | 30.370 | -17.522 | -24.299 | 24.018 | 26.863 | -20.123 | |
| | -30.828 | 20.006 | 32.323 | -13.760 | -28.539 | 22.232 | 29.172 | -17.335 | |
| | -33.460 | 16.383 | 33.628 | -9.618 | -30.990 | 20.188 | 31.282 | -12.954 | |
| | -35.068 | 12.253 | 34.251 | -5.254 | -33.151 -34.762 | 17.318 13.728 | 32.524 32.991 | -8.536 -5.255 | |
| | -35.309 | 7.650 2.248 | 34.347 | -1.556 | -35.229 | 9.255 | 33.006 | -0.955 | |
| | -35.313 -35.317 | -2.765 | 34.34/ | -1.550 | -35.226 | 4.523 | 33.006 | -0.555 | |
| 2 1000 | y mm | z [mm] | y mm | - faul | | | | | |
| | | | | z [mm] | y mm | z [mm] | y mm | z mm | у п |
| 30.955 | 7.717 | -34.006 | 16.296 | 27.305 | 13.875 | | | | |
| 30.955 30.708 | 8.890 | -34.006 -34.926 | 16.296 13.494 | 27.305 26.795 | 13.875 15.032 | 25.393 | y mm 14.221 15.503 | 23.855 | 12.2 |
| | 8.890 10.420 | -34.006 -34.926 -35.134 | 16.296 13.494 10.606 | 27.305 26.795 25.926 | 13.875 15.032 16.704 | 25.393 24.763 | 14.221 | 23.855 23.348 | 12.2 |
| 30.708 | 8.890 10.420 11.547 | -34.006 -34.926 -35.134 -35.145 | 16.296 13.494 10.606 6.412 | 27.305 26.795 25.926 24.641 | 13.875 15.032 16.704 18.576 | 25.393 24.763 23.563 | 14.221 15.503 | 23.855 23.348 22.749 | 12.2 13.4 14.6 |
| 30.708 30.320 29.975 29.389 | 8.890 10.420 11.547 13.084 | -34.006 -34.926 -35.134 -35.145 -35.144 | 16.296 13.494 10.606 6.412 1.007 | 27.305 26.795 25.926 24.641 23.620 | 13.875 15.032 16.704 18.576 19.737 | 25.393 24.763 | 14.221 15.503 17.458 | 23.855 23.348 22.749 22.144 | 12.2 13.4 14.6 15.7 |
| 30.708 30.320 29.975 29.389 28.499 | 8.890 10.420 11.547 13.084 15.229 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 | 16.296 13.494 10.606 6.412 1.007 -6.415 | 27.305 26.795 25.926 24.641 23.620 21.044 | 13.875 15.032 16.704 18.576 19.737 21.903 | 25.393 24.763 23.563 22.450 | 14.221 15.503 17.458 18.902 | 23.855 23.348 22.749 22.144 21.124 | 12.2 13.4 14.6 15.7 17.3 |
| 30.708 30.320 29.975 29.389 28.499 27.559 | 8.890 10.420 11.547 13.084 15.229 16.980 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 | 16.296 13.494 10.606 6.412 1.007 -6.415 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 | 25.393 24.763 23.568 22.450 20.608 | 14.221 15.503 17.458 18.902 20.768 | 23.855 23.348 22.749 22.144 21.124 19.851 | 12.2 13.4 14.6 15.7 17.3 18.8 |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 | 25.393 24.763 23.563 22.450 20.608 18.577 | 14.221 15.503 17.458 18.902 20.768 22.276 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 | 12.2! 13.4! 14.6! 15.7! 17.3 18.8! 20.4! |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 | -34.006 -34.926 -35.134 -35.145 -35.160 -35.161 -34.586 -33.631 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 | 27.305 26.795 25.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 | 12.2! 13.4! 14.6! 15.7! 17.3 18.8! 20.4! |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 -20.658 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 | 12.2! 13.4! 14.6! 15.7! 17.3 18.8! 20.4! 22.00 |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 20.457 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 | -34.006 -34.926 -35.134 -35.145 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.983 -17.108 -20.658 -22.757 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 | 12.2! 13.4! 14.6! 15.7! 17.3 18.8! 20.4! 22.0! 23.1! 24.14 |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 20.457 17.841 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 | -34.006 -34.926 -35.134 -35.145 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 -20.658 -22.757 -23.905 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 | 12.2: 13.4: 14.6: 15.7: 17.3: 18.8: 20.4: 22.0: 23.1: 24.1: 24.4: |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 20.457 17.841 14.261 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.536 -33.631 -31.025 -28.186 -25.413 -22.338 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.983 -17.108 -20.658 -22.757 -23.905 -24.476 | 27.305 26.795 25.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 | 12.2: 13.4: 14.6: 15.7: 17.3 18.8: 20.4: 22.0: 23.1: 24.14: 24.4: |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 20.457 17.841 14.261 10.308 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.501 24.501 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 -20.658 -22.757 -23.905 -24.476 -24.455 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.336 24.389 24.501 24.478 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 | 12.2! 13.44 14.6! 15.7! 17.3 18.83 20.4! 22.0: 23.1: 24.14 24.4: 24.4: |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 20.457 17.841 14.261 10.308 4.683 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 24.507 24.507 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.983 -17.108 -20.658 -22.757 -23.905 -24.495 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 -22.648 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 24.501 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.478 24.483 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 | 12.2! 13.4! 14.6! 15.71 17.3 18.8! 20.4! 22.00 23.1! 24.1! 24.4! 24.4! 24.4! |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 20.457 17.841 14.261 14.261 4.683 .0.205 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 22.194 24.075 24.501 24.507 24.506 24.505 | -34.006 -34.926 -35.134 -35.145 -35.160 -35.161 -34.536 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.938 -17.108 -20.658 -22.757 -23.905 -24.476 -24.495 -24.495 | 27. 305 26. 795 25. 795 25. 926 24. 641 23. 620 21. 044 19. 276 16. 639 13. 739 10. 730 7. 022 1. 259 -5. 570 -10. 801 -22. 648 -27. 764 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.507 23.329 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.497 24.483 23.713 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 | 12.22 13.4: 14.6: 15.7: 17.3 18.8: 20.4: 22.0: 23.1: 24.1: 24.4: 24.4: 24.4: 24.4: 24.4: 24.4: |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 23.194 21.1841 14.261 10.303 4.683 .0.205 -4.722 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 24.501 24.505 24.505 24.505 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.536 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.983 -17.108 -20.658 -22.757 -23.905 -24.476 -24.495 -24.495 -24.495 | 27. 305 26. 795 25. 795 25. 926 24. 641 23. 620 21. 044 19. 276 16. 639 13. 739 10. 730 7. 022 1. 259 -5. 570 -10. 801 -22. 648 -27. 764 -32. 977 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.507 23.329 18.690 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.497 24.497 23.713 21.697 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 | 12.22 13.41 14.6 15.7. 17.3 18.81 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 24.4 24.4 24 |
| 30.708 30.320 39.975 29.975 29.389 28.499 27.559 26.492 24.944 20.457 17.841 10.308 4.663 .0.205 4.663 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 24.507 24.506 24.505 24.505 24.504 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 6.546 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 -20.658 -22.757 -23.905 -24.495 -24.495 -24.495 -24.495 -24.495 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 -22.648 -27.764 -32.977 -34.734 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 24.507 23.329 18.690 14.744 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.497 23.713 21.697 18.271 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 -12.154 -18.956 | 12.22 13.44 14.6 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 24.1 24.1 24 |
| 30. 20 30. 320 29. 975 29. 389 28. 499 27. 559 26. 492 24. 944 20. 457 17. 841 14. 261 10. 309 4. 683 0. 205 -4. 722 -10. 324 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 24.507 24.506 24.505 24.504 24.502 24.500 | -34.006 -34.926 -35.134 -35.145 -35.145 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 6.546 20.359 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 -20.658 -22.757 -23.905 -24.476 -24.495 -24.495 -24.495 -24.495 -24.495 -24.492 -23.236 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 -22.648 -27.764 -32.977 -34.734 -35.039 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 24.507 23.329 18.690 14.744 11.145 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 -34.269 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.497 24.483 23.713 21.697 18.271 14.443 9.313 4.495 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 | 12.2 13.4 14.6 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 24.1 24.1 24 |
| 30.708 30.320 29.975 29.389 28.499 27.559 26.492 24.944 20.457 17.861 14.261 10.308 4.683 .0.205 -4.722 -10.324 -14.939 -20.171 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.507 24.506 24.505 24.504 24.502 24.500 24.500 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 -6.546 20.359 23.759 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.938 -17.108 -20.658 -22.757 -23.905 -24.476 -24.495 -24.495 -24.495 -24.492 -23.236 -21.243 | 27. 305 26. 795 25. 795 25. 926 24. 641 23. 620 21. 044 19. 276 16. 639 13. 739 10. 730 7. 022 1. 259 -5. 570 -10. 801 -22. 648 -27. 764 -32. 977 -34. 734 -35. 039 -35. 047 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.507 23.329 18.690 14.744 11.145 6.730 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 -34.269 -34.445 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.497 24.483 23.713 21.697 18.271 14.443 9.313 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 -12.154 -18.956 | 12.2 13.4 14.6 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 24.1 |
| 30. 708 30. 320 29. 975 29. 375 29. 389 28. 499 27. 559 26. 492 24. 944 23. 194 20. 457 17. 841 10. 308 4. 663 4. 663 -4. 722 -10. 324 -14. 939 -14. 722 -10. 324 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 24.506 24.505 24.504 24.500 24.500 24.500 24.501 24.323 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.536 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 6.546 20.359 23.759 26.421 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.983 -17.108 -20.658 -22.757 -23.905 -24.476 -24.495 -24.495 -24.495 -24.495 -24.492 -23.236 -21.243 -18.622 | 27. 305 26. 795 26. 795 25. 926 24. 641 23. 620 21. 044 19. 276 16. 639 13. 739 10. 730 7. 022 1. 259 -5. 570 -10. 801 -22. 648 -27. 764 -32. 977 -34. 734 -35. 039 -35. 067 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.507 23.329 18.690 14.744 11.145 6.730 0.941 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 -34.269 -34.445 -34.433 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.389 24.501 24.478 24.483 23.713 21.697 18.271 14.443 9.313 4.485 -0.812 -6.165 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 -12.154 -18.956 | 12.2 13.4 14.6 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.5 19.5 |
| 30. 208 30. 320 29. 975 29. 379 28. 499 27. 559 26. 499 27. 559 26. 494 20. 457 17. 841 10. 308 4. 663 .0. 205 4. 663 .0. 205 -4. 722 -10. 324 -14. 939 -20. 171 -21. 639 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.775 24.501 24.507 24.506 24.502 24.500 24.502 24.500 24.501 24.323 23.407 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 -6.546 20.359 23.759 26.421 28.082 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -27.108 -20.658 -22.757 -23.905 -24.455 -24.455 -24.495 -24.495 -24.495 -24.492 -23.236 -21.243 -18.622 -16.104 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 -22.648 -27.764 -32.977 -34.734 -35.039 -35.047 -35.061 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 24.507 23.329 18.690 14.744 11.145 6.730 0.941 -5.298 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 -34.45 -34.433 -34.417 -34.425 -34.420 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 23.713 21.697 18.271 14.443 9.313 4.485 -0.832 -6.165 -11.416 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 -12.154 -18.956 -21.754 | 12.2 13.4 14.5 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 12.6 19.5 |
| 30. 20 30. 320 29. 975 28. 499 27. 559 26. 492 24. 944 20. 457 17. 841 14. 261 10. 303 4. 683 .0. 205 -4. 722 -10. 174 -10. 174 - | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.075 24.501 24.507 24.506 24.505 24.500 24.500 24.500 24.501 24.323 23.407 21.608 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 6.546 20.359 23.759 26.421 28.082 29.390 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -17.108 -20.658 -22.757 -23.905 -24.476 -24.495 -24.495 -24.495 -24.495 -24.492 -23.236 -21.243 -18.622 -16.104 -13.159 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 -22.648 -27.764 -32.977 -34.734 -35.039 -35.061 -35.062 -35.074 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 24.507 23.329 18.690 14.744 11.145 6.730 0.941 -5.298 -12.043 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 -34.269 -34.445 -34.433 -34.417 -34.425 -34.420 -33.934 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 24.497 24.483 23.713 21.697 18.271 14.443 9.313 4.485 -0.832 -6.165 -11.416 -15.883 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 -12.154 -18.956 -21.754 | 12.2 13.4 14.5 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 12.6 19.5 |
| 30. 208 30. 320 29. 975 29. 379 28. 499 27. 559 26. 499 27. 559 26. 494 20. 457 17. 841 10. 308 4. 663 .0. 205 4. 663 .0. 205 -4. 722 -10. 324 -14. 939 -20. 171 -21. 639 | 8.890 10.420 11.547 13.084 15.229 16.980 18.512 20.215 21.659 23.194 24.775 24.501 24.507 24.506 24.502 24.500 24.502 24.500 24.501 24.323 23.407 | -34.006 -34.926 -35.134 -35.145 -35.144 -35.160 -35.161 -34.586 -33.631 -31.025 -28.186 -25.413 -22.338 -17.665 -12.260 -6.979 -0.427 -6.546 20.359 23.759 26.421 28.082 | 16.296 13.494 10.606 6.412 1.007 -6.415 -11.122 -14.988 -27.108 -20.658 -22.757 -23.905 -24.455 -24.455 -24.495 -24.495 -24.495 -24.492 -23.236 -21.243 -18.622 -16.104 | 27.305 26.795 25.926 24.641 23.620 21.044 19.276 16.639 13.739 10.730 7.022 1.259 -5.570 -10.801 -22.648 -27.764 -32.977 -34.734 -35.039 -35.047 -35.061 | 13.875 15.032 16.704 18.576 19.737 21.903 22.901 23.888 24.426 24.506 24.507 24.503 24.501 24.501 24.507 23.329 18.690 14.744 11.145 6.730 0.941 -5.298 | 25.393 24.763 23.563 22.450 20.608 18.577 16.016 13.142 9.248 4.114 -1.215 -11.093 -22.442 -26.424 -30.029 -32.889 -34.45 -34.433 -34.417 -34.425 -34.420 | 14.221 15.503 17.458 18.902 20.768 22.276 23.582 24.316 24.389 24.501 24.478 23.713 21.697 18.271 14.443 9.313 4.485 -0.832 -6.165 -11.416 | 23.855 23.348 22.749 22.144 21.124 19.851 18.185 15.833 13.551 10.165 7.328 4.040 0.372 -3.974 -8.941 -12.154 -18.956 -21.754 | 12.2 13.4 14.5 15.7 17.3 18.8 20.4 22.0 23.1 24.1 24.4 24.4 24.4 24.4 12.6 19.5 |

Section R19

Section R20

Chordwise position of pressure orifices

Table 3.3 continued: Measured fuselage contour

| Penwise_position | on of pressure orifices | 0* | + only on lower side |
|------------------|-------------------------|-------|-----------------------------------|
| Designation | y/s (s = halfspan) | 0.025 | # only on upper side |
| KS | 0,133 | 0,075 | Note: |
| H1 | 0,198 | 0,1 | The orifices on the upper side ar |
| H2 | 0,262 | 0,15 | located on the right wing side in |
| Н3 | 0,375 | 0,2 | flight direction. |
| H4 | 0,505 | 0,3* | the orifices on the lower side |
| H5 | 0,648 | 0.4 | on the left one. |
| H6 | 0.786 | 0,5 | |
| H7 | 0,928 | 0,6 | |
| | | 0.7* | |
| | | 0,8 | |
| | | 0,9 | |
| | | 0.98" | |

Table 3.4: Location of pressure orifices

| NR | x/c | SECTION | HS | ×/c | SECTION | 1 ML | x/c | SECTION | 2 ML | x/c | SECTION | 3 ML |
|--|---|--|--|--|--|---|--|---|--|--|--|---|
| UPPER | SIDE | C | - AL | *** | Ci | ME. | */- | Ch | w.C | x/c | CP | WE |
| 1 | 3.3 | 0.4375 | 0.3867 | 0.0 | 0.7591 | 0.4340 | 0.0 | 0.7370 | 0.4448 | 0.0 | 0.6914 | 0.471 |
| 2 | 0.0250 | 0.0444 | 0.7807 | 0.0250 | -0.0771 | 0.8357 | 0.0250 | -0.0222 | 0.8107 | 0.6250 | -0.0357 | 0.818 |
| 1 | 0.0500 | -0.1707 | 0.8602 | 0.0500 | -0.2221 | 0.9015 | 0.0500 | -0.2080 | 0.89+9 | 0.0500 | -3.2169 | 0.895 |
| 4 | 0.0750 | - 0.1671 | 0.8769 | 0.0750 | -0.2204 | 0.9036 | 0.0750 | -0.2664 | 0.9214 | 0.0750 | -0.3173 | 0.945 |
| 5 | C.1000 | -0.1611 | C. 8735 | 0.1000 | -0.2051 | 0.4934 | 0.1000 | -0.2460 | 0.9132 | 0.1000 | -0.2769 | 0.927 |
| 6 | 0.1500 | -3.1552 | 0.8708 | 0.1500 | -0.1975 | 0.8931 | 0.1503 | -0.2400 | 0.91.2 | 0.1500 | | 3.927 |
| 7 | 0.2000 | -0.21 CR | 2.8360 | 0.2000 | -0.2648 | 0.9209 | 0.2000 | -0.2847 | 0.9304 | 0.1900 | -0.3261 | 0.450 |
| 6 | 9.3000 | -0.2395 | 0.9096 | 0.3000 | -0.2570 | 0.9354 | 0.3000 | -0.3247 | 0.9488 | | | |
| 9 | 0.4000 | -3.2662 | 0.5217 | 0.4000 | -0.2585 | 0.9361 | 0.4000 | -0.3376 | | 0.3000 | -0.3671 | 0.965 |
| 10 | 0.5000 | -0.3058 | 0.9402 | 0.5000 | -0.3312 | 0.9515 | 0.5000 | -0.3587 | 0.9544 | 0.4000 | -0.3636 | 0.957 |
| 11 | 0.6000 | - 3.2707 | 3.9243 | | | | | | 0.9645 | 0.5000 | -0.3714 | 0.970 |
| | 0.1100 | -0.2773 | | 0.6000 | -0.2905 | 3.2353 | 0.6000 | -0.3186 | 0.9460 | 0.6000 | -0.3301 | J. 951 |
| 12 | 0.4300 | -0.1114 | 0.9030 | 0.7000 | | 0.9062 | 0.7000 | -C.2512 | 0.9146 | C.7CCC | -5.2678 | 0.922 |
| | 0.9310 | | 0.6512 | 0.9000 | -0.0684 | 0.8408 | 0.8000 | -0.3515 | 0.8637 | 0.8000 | -0.0499 | 0.823 |
| 14 | | -).0119 | 0.836) | 0.9000 | 0.0125 | 0.7952 | 0.9000 | 0.0258 | 0.7888 | 0.9000 | 0.0257 | 0.789 |
| 15 | 1.0000 | 0.0177 | 0.7608 | 1.0000 | 0.1134 | 0.7493 | 1.0000 | 0.1031 | 0.7537 | 1.0000 | 0.1014 | 0.754 |
| LOWER | SIDE | | | 40.00 | 100000 | | 2.00 | | | | | |
| 1 | 0.0 | 0.8375 | 3.3867 | 0.0 | 0.7581 | 0.4340 | 0.0 | 0.7390 | 6.4448 | 0.0 | 0.5914 | 0.471 |
| 2 | 0.0500 | -0.0061 | 0.8031 | 0.0500 | -0.1.40 | 0.8570 | 0.0500 | -0.1839 | 0.8835 | 0.0500 | -0.2204 | 0.500 |
| 3 | 0.1010 | - 0.01.59 | 0.8077 | 0.1000 | -0.3759 | 0.8345 | 0.1000 | -D.1080 | 0.8492 | 0.1000 | -0.1000 | 0.876 |
| 4 | C.1500 | -0.0552 | 0.8253 | 0.1500 | -0.1024 | C.3470 | C.1500 | -0.121# | 0.8550 | 0.1500 | -0.1849 | 0.884 |
| 5 | 0.2000 | -3.0772 | 0.8349 | 0.2000 | -0.1234 | 0.85-3 | 0.2000 | -0.1491 | 0.4674 | 0.2000 | -0.2076 | 0.855 |
| 6 | 0.4000 | -0.2715 | 0.9376 | 0.4000 | -0.2787 | 0.9271 | C.4000 | -0.2833 | 0.9295 | 0.4000 | -0.2867 | C. 931 |
| 7 | 0.5700 | -0.2312 | 0.5052 | 0.5000 | -0.2274 | 0.4036 | 0.5000 | -0.2161 | 0.4780 | 0.5000 | -0.2163 | 3.896 |
| 8 | 0.6700 | -0.1322 | O. HEGO | 0.6000 | -0.1098 | 0.9499 | 0.6000 | -0.0924 | 0.8473 | 0.6000 | -1.0758 | 0.834 |
| 9 | C. 800C | 0.0481 | 0.7793 | C. 8000 | 0.0656 | 0.7706 | C.8CC0 | 0.0869 | 0.7613 | 0.9000 | 0.0962 | 0.750 |
| 10 | 0.2000 | 0.0419 | 0.7553 | 0.9000 | 0.1157 | 0.7442 | 0.9000 | 0.1332 | 0.739+ | 0.9000 | 0.1335 | 0.743 |
| 11 | 1.0000 | 0.0677 | 0.7608 | 1.0000 | 0.1134 | 0.7493 | 1.0000 | 0.1031 | 0.7539 | 1.0000 | 0.1014 | C. 754 |
| | | | | | | | | | | | | |
| N# | x/c | SECTION | 4 ML | X/C | SECTION | 5 M(| X/C | SECTION CP | | X/C | SECTION | |
| UPPER | 310E | Co | ML | */C | | | x/c | | 6 ML | x/c | SECTION CP | / ML |
| UPPER | 510E | 2.7025 | ML 0.4650 | */C | | | x/c | CP | ML | | CP | ML |
| UPPER | 0.9 0.0250 | 0.7025 -3.0187 | ML | | CP CP | ML | | | ML 0.5103 | 0.0 | 0.5e34 | ML 0.537 |
| UPPER 1 2 3 | \$10E 0.0 0.0250 0.0500 | 0.7025 -3.0187 -3.2109 | ML 0.4650 0.8139 0.8564 | 0.0 | 0.6829 | ML 0.4715 | 0.0 | CP 0.6168 | ML 0.5103 0.9025 | 0.6 | 0.5634 -0.1500 | ML 0.537 |
| UPPER 1 2 3 | \$10E 0.0 0.0250 0.0500 0.0750 | 0.7025 -3.0187 -3.2109 -0.2140 | ML 0.4650 0.8139 0.8564 0.9255 | 0.0 | 0.6899 0.0550 | 0.4715 0.7760 | 0.0 0.0501 0.1000 | 0.616A -0.2246 -0.290H | ML 0.5103 0.9025 0.9331 | 0.C 0.3509 C.109C | 0.5634 -0.1550 -0.2864 | ML 0.537 0.669 0.929 |
| UPPER 1 2 3 | \$10E 0.0 0.0250 0.0550 0.0750 | 0.7025 -3.0187 -3.2109 -0.2140 -3.1017 | ML 0.4650 0.8139 0.8564 | 0.0 0.0250 0.0500 | 0.6899 0.0550 -0.1559 | ML 0.4715 0.7760 0.8897 | 0.0 | 0.6168 -0.2246 -0.2908 -0.3016 | ML 0.5103 0.9025 0.9331 0.9391 | 0.0 0.3500 0.1000 0.1500 | 0.5634 -0.1500 -0.2864 -0.2952 | ML 0.537 0.669 0.935 |
| UPPER 1 2 3 4 5 | \$10E 0.0 0.0250 0.0550 0.0750 0.1300 0.1500 | 0.7025 -3.0187 -3.2109 -0.2140 -3.1017 -0.3099 | ML 0.4650 0.8139 0.8564 0.9255 | 0.0 0.0250 0.0500 0.0750 | 0.6829 0.0550 -0.1559 -0.2622 -0.1008 | ML 0.4715 0.7760 0.8897 0.9232 0.9379 | 0.0 0.0503 0.1003 0.1503 0.2033 | 0.6168 -0.2246 -0.2708 -0.3016 -0.3367 | ML 0.5103 0.9075 0.9331 0.9391 0.9545 | 0.0 9.3509 0.1050 9.1500 0.2030 | 0.5634 -0.1500 -0.2864 -0.2962 -0.3477 | ML 0.537 0.669 0.935 0.960 |
| UPPER 1 2 3 4 5 6 7 | \$10E 0.0 0.0250 0.0550 0.0750 | 0.7025 -3.0187 -3.2109 -0.2140 -3.1017 | ML 0.4650 0.8139 0.8564 0.9255 0.9385 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | 0.6829 0.0550 -0.1559 -0.2632 -0.1004 -0.3102 | ML 0.4715 0.7760 0.8897 0.9232 0.9379 0.9420 | 0.0 0.0503 0.1003 0.1503 0.2033 0.3000 | 0.6168 -0.2246 -0.2708 -0.3016 -0.3167 -0.3836 | ML 0.5103 0.9075 0.9331 0.9391 0.9545 0.9759 | 0.C 9.3509 C.105C 0.1500 0.2039 0.3000 | 0.5634 -0.1530 -0.2864 -0.2962 -0.3477 -0.3773 | ML 0.537 3.669 0.935 0.960 0.573 |
| UPPER 1 2 3 4 5 | \$10E 0.0 0.0250 0.0550 0.0750 0.1300 0.1500 | 0.7025 -3.0187 -3.2109 -0.2140 -3.1017 -0.3099 | ML 0.4650 0.8139 0.8564 0.9255 0.9385 0.9421 0.9559 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | 0.6829 0.0550 -0.1559 -0.2622 -0.3004 -0.3102 -0.3430 | ML 0.4715 0.7760 0.8897 0.9212 0.9379 0.9420 0.9556 | 0.0 0.0503 0.1003 0.1503 0.2003 0.3000 0.4003 | 0.6168 -0.2246 -0.2708 -0.3016 -0.3367 -0.3836 -0.3990 | ML 0.5103 0.9075 0.9381 0.9381 0.9545 0.9753 0.9837 | 0.C 9.3509 C.105C 0.1500 0.2009 0.3000 | 0.5634 -0.1500 -0.2864 -0.2962 -0.3477 -0.3773 -0.3480 | ML 0.537 3.669 0.935 0.960 0.573 0.960 |
| UPPER 1 2 3 4 5 6 7 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | 0.7025 -3.0187 -3.2109 -0.2140 -3.3017 -0.3099 -0.1395 | ML 0.4650 0.8139 0.8564 0.9255 0.9385 0.9421 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.2000 | 0.6829 0.0550 -0.1559 -0.2622 -0.3004 -0.3102 -0.3430 -0.3618 | ML 0.4715 0.7760 0.8897 0.9232 0.9379 0.9420 0.9556 0.9754 | 0.0 0.0593 0.1003 0.1503 0.2033 0.3000 0.4003 0.5000 | 0.6168 -0.2246 -0.2768 -0.3016 -0.3369 -0.3636 -0.3791 | ML 0.5103 0.9075 0.9331 0.9391 0.9545 0.9759 0.9769 | 0.0 9.3500 0.1000 0.2000 0.3000 0.4000 | 0.5634 -0.1500 -0.2804 -0.2962 -0.3477 -0.3773 -0.3480 -0.3231 | ML 0.537 3.669 0.935 0.960 0.573 0.960 0.573 |
| UPPER 1 2 3 4 5 6 7 8 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1000 0.2000 0.3000 | 0.7025 -3.0187 -3.2109 -0.2109 -0.3017 -0.3099 -0.3396 -0.356 | ML 0.4650 0.8139 0.8764 0.5255 0.9385 0.9421 0.9558 0.9771 0.5757 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.2000 | 0.6829 0.0550 -0.1559 -0.2622 -0.3004 -0.3102 -0.3400 -0.3618 -0.3909 | ML 0.4715 0.7760 0.8897 0.9232 0.9379 0.9420 0.9556 0.9754 0.9801 | 0.0 0.0503 0.1003 0.1503 0.2033 0.3000 0.4003 0.5000 C.6000 | 0.6168 -0.2246 -0.2708 -0.3016 -0.3636 -0.3636 -0.3791 -0.3273 | ML 0.5103 0.9025 0.9331 0.9391 0.9545 0.9759 0.9837 0.9748 0.9515 | 0.0 9.3500 0.1000 0.2000 0.3000 0.4000 0.5000 0.4000 | 0.5634 -0.1550 -0.2864 -0.2962 -0.3477 -0.3773 -0.3480 -3.3231 -0.2487 | ML 0.537 3.669 0.935 0.960 0.573 0.960 0.544 |
| UPPER 1 2 3 4 5 6 7 8 | \$10E 0.9 0.0250 0.0553 0.0750 0.1500 0.2330 0.2330 0.4930 0.5030 | 0.7025 -3.0187 -3.2109 -0.2140 -3.1017 -0.3199 -0.3195 -0.3850 -0.3820 | ML 0.4650 0.8139 0.8764 0.9255 0.9385 0.9421 0.9559 0.9771 0.5757 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 | 0.6829 0.0550 -0.1559 -0.2622 -0.3008 -0.3102 -0.3430 -0.3618 -0.3939 | ML 0.4715 0.7760 0.8897 0.9232 0.9379 0.9420 0.9556 0.9754 0.901 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 | 0.6168 -0.2246 -0.2708 -0.1016 -0.3369 -0.3690 -0.3791 -0.3273 -0.3273 | ML 0.5103 0.9025 0.9331 0.9341 0.9545 0.9759 0.9817 0.9748 0.9515 J.9062 | 0.C 9.3509 C.105C 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 | CP 0.5634 -0.1500 -0.2804 -0.2662 -0.3477 -0.3773 -0.3480 -0.3231 -0.2487 -0.1238 | ML 0.537 3.667 3.929 0.935 0.960 0.573 0.960 0.548 |
| UPPER 1 2 3 4 5 6 7 8 | \$10E 0.0 0.0250 0.0550 0.0750 0.1500 0.2000 0.2000 0.4000 | 0.7025 -J.0187 -J.2109 -D.2109 -D.3117 -O.3199 -D.3399 -D.3354 -D.3654 | ML 0.4650 0.8139 0.8564 0.9255 0.9485 0.9711 0.9751 0.9711 0.9740 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.6600 | CP 0.6899 0.0550 0.1559 -0.1559 -0.2652 -0.3004 -0.3102 -0.3400 -0.3618 -0.5009 -0.3338 | MU 0.4715 0.7760 0.8897 3.9232 0.9379 0.9420 0.9556 0.9754 0.9001 0.9795 0.9795 | 0.0 0.0503 0.1003 0.1503 0.2033 0.3000 0.4003 0.5000 0.6000 0.7000 0.7000 | 0.6168 -0.2246 -0.2908 -0.3016 -0.3169 -0.3896 -0.3990 -0.3791 -0.3293 -0.2211 -0.0510 | ML 0.5103 0.9025 0.9331 0.9341 0.9545 0.9759 0.9817 0.9768 0.9768 0.9768 0.9768 | 0.6 3.3500 6.1656 3.1500 0.2039 0.3000 0.4000 0.5066 0.6000 0.7030 0.8000 | CP 0.5634 -0.1500 -0.2804 -0.2952 -0.3477 -0.3773 -0.3480 -0.3231 -0.2487 -0.2238 -0.0279 | ML 0.537 0.669 0.935 0.960 0.573 0.960 0.573 0.960 0.513 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 | \$10E 0.0 0.0250 0.0750 0.0750 0.1500 0.2000 0.3000 0.5000 0.5000 0.5000 0.7000 | CP 2.7025 -).0189 -).2109 -0.2140 -).5017 -0.1099 -0.1365 -0.1850 -0.1771 -).2705 | ML 0.4650 0.8139 0.8564 0.9255 0.9421 0.9569 0.9771 0.9771 0.9771 0.9780 0.9231 | 0.0 0.0250 0.0560 0.1000 0.1560 0.2000 0.2000 0.5000 0.5000 0.5000 0.5000 | CP 0.6899 0.0560 -0.1569 -0.2692 -0.3008 -0.3102 -0.3400 -0.3409 -0.3897 -0.3897 -0.3897 -0.3897 | ML 0.4715 0.7760 0.8897 0.9379 0.9379 0.9556 0.9754 0.9754 0.9754 0.9754 | 0.0 0.0593 0.1099 0.1599 0.2933 0.3000 0.4033 0.5000 0.7090 0.4000 0.7090 | CP 0.6168 -0.2246 -0.2708 -0.3016 -0.3836 -0.38590 | ML 0.5103 0.9075 0.9381 0.9381 0.9545 0.9759 0.9817 0.9748 0.9515 J.9062 0.8734 0.7744 | 0.C 9.3509 0.1650 0.1500 0.2039 0.3000 0.4000 0.5000 0.7000 0.8000 0.8000 | CP 0.5634 -0.1500 -0.2864 -0.2962 -0.3773 -0.487 -0.1238 -0.0279 0.0271 | ML 0.537 3.669 0.935 0.960 0.573 0.960 0.573 0.960 0.573 |
| UPPER 1 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 | \$10E C.0 0.0250 0.0550 0.0750 0.1000 C.1500 0.2000 0.4000 0.5000 C.6000 0.7000 0.8000 | CP 0.7025 -0.0189 -0.2109 -0.2140 -0.3049 -0.3049 -0.3854 -0.3854 -0.3871 -0.2705 -0.4744 | ML 0.4650 0.8139 0.8564 0.6255 0.9385 0.9421 0.9559 0.9771 0.9733 0.9560 0.9231 | 0.0 0.0250 0.0560 0.0750 0.1000 0.1560 0.2000 0.4000 0.5000 0.6600 0.7000 0.8100 | CP 0.6899 0.0550 -0.1559 -0.2622 -0.3004 -0.1102 -0.3818 -0.3908 -0.3897 -0.3338 -0.2287 -0.3612 | ML 0.4715 0.7760 0.8897 0.9379 0.9379 0.9556 0.9754 0.9001 0.9795 0.9795 0.940 0.940 0.940 0.9880 | 0.0 0.0593 0.1693 0.1593 0.2393 0.4003 0.5000 0.7090 0.7090 0.7090 0.7090 | CP 0.6168 -0.2246 -0.2704 -0.3016 -0.3836 -0.3890 -0.3791 -0.2273 -0.2311 -0.0510 0.0577 0.1664 | ML 0.5103 0.9075 0.9331 0.9341 0.9545 0.9759 0.9748 0.9748 0.9758 0.9748 0.9748 0.7744 | 0.C 0.3500 0.105C 0.1500 0.2000 0.3000 0.4000 0.4000 0.7000 0.4000 0.4000 0.4000 0.4000 | CP 0.5634 -0.1500 -0.2804 -0.2962 -0.3477 -0.3773 -0.3231 -0.2487 -0.2271 0.0271 0.0271 0.0220 | ML 0.537 3.669 0.935 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.763 |
| UPPER 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 | \$10E C.0 0.0250 0.0550 0.0750 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.8000 | CP 2.7025 -0.0189 -0.2109 -0.2140 -0.3099 -0.3399 -0.3854 -0.1820 -0.3713 -0.3711 -0.2705 -0.0474 0.0259 | MU 0.4650 0.8139 0.8564 0.5255 0.9325 0.9421 0.9559 0.9771 0.9731 0.9740 0.9231 0.9231 0.9231 0.9256 | 0.0 0.0250 0.0560 0.0750 0.1000 0.1560 0.2000 0.4000 0.5000 0.6600 0.7000 0.8000 0.9000 | CP 0.6899 0.0560 -0.1569 -0.2602 -0.3102 -0.3102 -0.3400 -0.5618 -0.3338 -0.2287 -0.0612 -0.0107 | ML 0.4715 2.7760 0.8897 3.9232 0.9379 0.9420 0.9556 0.9754 0.9795 0.9754 0.9795 0.9754 0.9795 0.9754 0.9750 0.9751 0.9750 0.9751 | 0.0 0.0593 0.1093 0.1593 0.2933 0.3000 0.4003 0.5000 0.7999 0.4000 0.9003 1.0000 | CP 0.6168 -0.2246 -0.3016 -0.3169 -0.3836 -0.3836 -0.3890 -0.3791 -0.223 -0.22311 -0.0510 0.0571 0.1664 | ML 0.5103 0.9025 0.9331 0.9545 0.9759 0.9837 0.9768 0.9615 0.96234 0.7744 0.7253 0.0 | 0.C 9.3509 C.165C 0.1590 0.2039 0.3000 0.4000 0.7003 0.4000 0.7003 0.4000 0.9000 1.0000 | CP 0.5634 -0.1500 -0.2864 -0.2962 -0.3773 -0.3773 -0.3231 -0.2487 -0.1238 -0.0275 0.0271 0.0200 0.0 | ML 0.537 0.669 0.729 0.935 0.960 0.573 0.960 0.713 0.856 0.413 0.763 0.763 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | SIDE C.0 0.0250 0.0550 0.0750 0.1500 C.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 0.8000 0.7000 0.8000 | CP 0.7025 -0.0189 -0.2109 -0.2140 -0.3049 -0.3049 -0.3854 -0.3854 -0.3871 -0.2705 -0.4744 | ML 0.4650 0.8139 0.8564 0.6255 0.9385 0.9421 0.9559 0.9771 0.9733 0.9560 0.9231 | 0.0 0.0250 0.0560 0.0750 0.1000 0.1560 0.2000 0.4000 0.5000 0.6600 0.7000 0.8100 | CP 0.6899 0.0550 -0.1559 -0.2622 -0.3004 -0.1102 -0.3818 -0.3908 -0.3897 -0.3338 -0.2287 -0.3612 | ML 0.4715 0.7760 0.8897 0.9379 0.9379 0.9556 0.9754 0.9001 0.9795 0.9795 0.940 0.940 0.940 0.9880 | 0.0 0.0593 0.1693 0.1593 0.2393 0.4003 0.5000 0.7090 0.7090 0.7090 0.7090 | CP 0.6168 -0.2246 -0.2704 -0.3016 -0.3836 -0.3890 -0.3791 -0.2273 -0.2311 -0.0510 0.0577 0.1664 | ML 0.5103 0.9075 0.9331 0.9341 0.9545 0.9759 0.9748 0.9748 0.9758 0.9748 0.9748 0.7744 | 0.C 0.3500 0.105C 0.1500 0.2000 0.3000 0.4000 0.4000 0.7000 0.4000 0.4000 0.4000 0.4000 | CP 0.5634 -0.1500 -0.2804 -0.2962 -0.3477 -0.3773 -0.3231 -0.2487 -0.2271 0.0271 0.0271 0.0220 | ML 0.537 0.661 0.936 0.960 0.573 0.960 0.548 0.913 0.813 0.813 |
| UPPER 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 | SIDE C.9 0.0250 0.0553 0.0750 0.1500 0.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 0.9000 0.9000 0.9000 | CP 2.7025 -3.0189 -9.2140 -3.5017 -0.3399 -0.3399 -0.3854 -0.3850 -0.3773 -1.3771 -0.2705 -3.0952 | MC 0.4650 0.8139 0.8564 0.9255 0.9385 0.9421 0.9559 0.9771 0.9757 0.9731 0.9750 0.9231 0.8216 0.7657 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.300 0.5000 0.5000 0.6000 0.7000 0.9000 1.0000 | CP 0.6899 0.0560 -0.1569 -0.2622 -0.3009 -0.3400 -0.3897 -0.3897 -0.3897 -0.3007 | ML 0.4715 2.7760 2.8897 3.9232 0.9379 0.9556 0.9754 0.9754 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 | 0.0 0.0503 0.1503 0.1503 0.2033 0.3000 0.4003 0.5000 0.7000 0.7000 0.9003 1.0003 0.0 | 0.6168 -0.2246 -0.2704 -0.3016 -0.3369 -0.3890 -0.3791 -0.3273 -0.2311 -0.0577 0.1664 0.0 | ML 0.5103 0.9025 0.9331 0.9545 0.9545 0.9754 0.9754 0.9754 0.9774 0.9774 0.7744 0.7753 0.0 | 0.C 9.3509 C.169C 0.1500 0.2039 0.3000 0.4000 0.4000 0.7000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0,5634 -0.1550 -0.2962 -0.2962 -0.4477 -0.3773 -0.4487 -0.1238 -0.275 -0.0271 -0.0271 -0.020 | ML 0.537 3.869 0.935 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.573 0.960 0.00 0.0 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | SIDE C.0 0.0250 0.0553 0.0750 0.1500 0.2330 0.4230 0.4230 0.5030 0.6600 0.7330 0.8330 0.2330 0.7330 0.8330 0.2330 0.7330 0.8330 0.2330 0.7330 0.8330 0.7330 0.8330 0.7330 0.8330 0.7330 0.8330 0.7330 0.8330 0.7330 | CP 2.7025 -3.0389 -3.2109 -0.2140 -3.5017 -0.3399 -0.3395 -3.3854 -0.3820 -3.773 -2.7871 -0.2705 -3.0474 0.0259 0.7025 | ML 0.4650 0.8139 0.8564 6.6255 0.9421 0.9559 0.9771 0.5757 0.9540 0.9231 0.8216 0.7657 | 0.0 0.0250 0.0250 0.0260 0.1000 0.1000 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 0.9000 | 0.6829 0.6829 0.05507 -0.1559 -0.2022 -0.3008 -0.3102 -0.3430 -0.3808 -0.3897 -0.3897 -0.2877 -0.0127 0.1037 | ML 0.4715 0.776 0.8897 0.9232 0.9379 0.9420 0.9556 0.9754 0.9754 0.9754 0.9740 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 | 0.0 0.0503 0.1003 0.1503 0.2033 0.3000 0.4003 0.5000 0.7000 0.7000 0.9003 1.0000 0.0 | 0.6168 -0.2246 -0.270H -0.3016 -0.3896 -0.3896 -0.3791 -0.2211 -0.0510 0.0577 0.1664 0.0 | ML 0.5103 0.9025 0.9331 0.9341 0.9545 0.9759 0.9847 0.9768 0.9515 0.96234 0.7744 0.7753 0.000 | 0.C 9.5505 C.10505 0.1550 0.3000 0.3000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0.5634 -0.1500 -0.2864 -0.2962 -0.3467 -0.3231 -0.480 -1.3231 -0.1238 -0.0279 0.0271 0.0420 0.00 | ML 0.537 0.669 0.960 0.960 0.960 0.960 0.960 0.963 0.9 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 | \$19E C.0 0.0250 0.0250 0.0250 0.0250 0.1000 0.1000 0.2000 0.3000 0.4000 0.4000 0.7000 0.8000 0.7000 0.8000 0.7000 0.8000 0.7000 0.8000 | 0.7025 -3.0189 -3.2109 -0.2140 -3.4017 -0.3049 -0.3154 -0.4820 -3.3711 -3.371 -3.2705 -3.0454 -3.0259 -3.0952 -3.0952 | MU 0.4650 0.8139 0.8764 0.5255 0.9385 0.9421 0.9771 0.5757 0.9540 0.9231 0.8716 0.7655 0.7657 0.9231 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.2000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 | CP 0.6899 0.0560 1.1569 -0.1569 -0.2602 -0.3400 -0.3400 -0.3899 -0.3334 -0.2287 -0.3334 -0.2287 -0.1007 | ML 0.4715 0.776 0.8897 0.8897 0.9232 0.9379 0.9420 0.9754 0.9754 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 0.9795 | 0.0 0.0593 0.1693 0.1593 0.2933 0.3000 0.4003 0.5000 0.7000 0.7000 1.0000 0.0000 0.0000 | CP 0.6168 -0.2246 -0.2708 -0.3016 -0.3169 -0.3791 -0.3791 -0.3231 -0.0577 0.1664 0.0 0.0 0.6168 -0.4420 | ML 0.5103 0.9025 0.9331 0.9341 0.9545 0.9759 0.9774 0.9715 0.9724 0.9715 0.6734 0.7725 0.000 0.5133 1.6046 | 0.C 9.3509 C.169C 0.169C 0.2090 0.3000 0.4000 0.500C 0.4000 0.7090 0.800C 0.9000 1.000C | CP 0.5634 -0.1550 -0.2864 -0.3952 -0.3487 -0.4880 -0.2487 -0.1238 -0.0271 0.0271 0.0271 0.0270 0.0270 0.0300 -0.5034 -0.5034 | ML 0.537 0.669 0.535 0.563 0.563 0.960 0.648 0.818 0.8 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 0WER 1 2 3 | \$19E C.0 0.0250 0.0250 0.0250 0.0250 0.1500 0.7030 0.4030 0.5030 0.5030 0.5030 0.7030 0.8030 | CP 2.7025 -).0389 -).2109 -0.2740 -0.3097 -0.3395 -0.3854 -0.3820 -0.37713 -).3771 -).2705 -).0474 0.0259 0.7025 -0.2320 -0.259 -0.2320 -0.259 -0.259 -0.2124 | MU 0.4650 0.8154 0.854 0.8255 0.9825 0.9825 0.9721 0.9757 0.9717 0.9740 0.9231 0.8716 0.7657 0.4650 0.9257 | 0.0 0.0250 0.0250 0.0250 0.1000 0.1500 0.2000 0.4000 0.5000 0.4000 0.5000 0.9000 1.0000 0.0500 0.1000 | 0.6829 0.6829 0.0560 -0.1569 -0.2622 -0.3008 -0.3102 -0.3618 -0.3808 - | ML 0.4715 0.7760 0.7897 0.9897 0.9232 0.9379 0.9429 0.9556 0.9754 0.9754 0.9754 0.9759 0.7716 0.7950 0.4715 0.7950 | 0.0 0.0501 0.1600 0.1500 0.2000 0.3000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.0000 0.0000 0.0000 0.0000 0.0000 | CP 0.6168 -0.2246 -0.3016 -0.3367 -0.3836 -0.3890 -0.3791 -0.510 0.0510 0.0517 0.1664 0.0 0.0 0.6168 -0.4420 -0.3118 | ML 0.5103 0.9075 0.9381 0.9381 0.9545 0.9759 0.9887 0.9788 0.9062 0.6238 0.77253 0.0 0.5123 1.0046 0.5430 | 0.C 9.3509 C.1650 0.1590 0.2039 0.3000 0.4000 0.4000 0.7039 0.4000 0.9000 1.6666 0.0 | CP 0.5634 -0.15604 -0.2560 -0.2560 -0.3677 -0.3773 -0.3487 -0.3231 -0.2487 -0.279 -0.0279 0.0271 0.0271 0.0260 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0. | ML 0.537 0.669 0.935 0.960 0.573 0.960 0.413 0.856 0.413 0.763 0.0 0.537 1.065 0.545 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 0WER 1 2 3 4 | \$19E C.9 0.0250 0.0250 0.0250 0.0750 0.1000 0.2000 0.4000 0.4000 0.5000 0.7000 0.8000 0.80000 0.800000 0.80000 0.80000 0. | CP 2.7025 -3.0189 -3.2109 -0.2740 -3.4017 -0.3399 -0.3859 -0.3850 -0.3871 -0.2705 -0.3871 -0.2705 -0.3871 -0.2705 -0.3871 -0.2705 -0.3871 -0.2705 -0.3871 -0.2705 -0.3871 -0.2705 -0.3871 | MU 0.4650 0.8150 0.8754 6.6255 0.9421 0.9751 0.9751 0.9750 0.9231 0.8760 0.9231 0.8760 0.9231 0.8765 0.7657 | 0.0 0.0250 0.0250 0.1000 0.1500 0.2000 0.2000 0.4000 0.5000 0.6000 0.9000 1.0000 0.1500 0.1500 | 0.6899 0.0360 0.1569 -0.1569 -0.2652 -0.3004 -0.3102 -0.3400 -0.3818 -0.3808 -0.3808 -0.3808 -0.3808 -0.3808 -0.3808 -0.3808 -0.3808 -0.3808 -0.3808 -0.2287 | ML 0.4715 0.77607 0.7807 0.8807 0.9790 0.9754 0.9001 0.9755 0.5931 0.9010 0.7755 0.5931 0.9010 0.7716 0.7716 0.7935 0.7936 0.7936 0.7936 0.7936 0.7936 | 0.0 0.0593 0.1593 0.1593 0.2033 0.3000 0.4003 0.4003 0.4000 0.9003 1.0000 0.9003 0.0503 0.1503 0.1503 | CP 0.6168 -0.2246 -0.2708 -0.3169 -0.3169 -0.3791 -0.273 -0.0510 0.0577 -0.1668 -0.00 0.6168 -0.4420 -0.3118 -0.2777 | ML 0.5103 0.9035 0.9351 0.9381 0.9585 0.9759 0.9788 0.9519 0.9788 0.9519 0.7744 0.7744 0.7763 0.0 0.5103 | 0.C 9.3505 C.105C 0.1550 0.2030 0.3000 0.4000 0.7000 0.6000 0.6000 0.0000 1.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.1550 | GP 9-5634 -0.1500 -0.28626 -0.3662 -0.3673 -0.3773 -0.3231 -0.2487 -0.1238 -0.0271 0.0271 0.0272 0.0271 0.0366 -0.0273 -0.0373 -0. | ML 0.537 0.960 0.960 0.573 0.960 0.513 0.856 0.813 0.763 0.00 0.537 1.668 0.968 0.968 0.968 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 10 WER 1 2 3 4 5 | \$19E C.9 0.0250 0.0550 0.0750 0.0750 0.1050 0.7050 0.7050 0.50000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.50000 0.5 | CP 3.7025 -3.018-7 -3.210-7 -3.210-7 -3.210-7 -3.319-7 -3.319-7 -3.319-7 -3.311-7 - | MU 0.4650 0.8139 0.8564 6.4255 0.9421 0.9559 0.9771 0.9757 0.9231 0.9762 0.9231 0.9767 0.9231 0.9231 0.9240 0.9257 0.9231 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.5000 0.5000 0.4000 0.5000 0.400 | 0.6899 0.0950 -0.1559 -0.1559 -0.2622 -0.4004 -0.4102 -0.4819 -0.3804 -0.3804 -0.2887 -0.2887 -0.3612 0.1007 0.6899 -0.3201 -0.2237 -0.2237 -0.2237 -0.2325 | ML 0.4715 0.7760 0.7760 0.8697 0.9212 0.9379 0.4620 0.9556 0.9754 0.9705 0.9751 0.9750 0.9716 0.7716 0.7950 0.4716 0.7950 0.4715 0.4022 0.9036 | 0.0 0.0593 0.10593 0.1593 0.2933 0.3093 0.4093 0.4093 0.4003 0.4003 0.4003 0.4003 0.4003 0.0593 0.0593 0.1000 0.1553 0.2000 | CP 0.6168 -0.2260 -0.2704 -0.1016 -0.3366 -0.3569 -0.3569 -0.3590 -0.3791 -0.0510 -0.0517 -0.0510 -0.0510 -0.0510 -0.0510 -0.4421 -0.0510 -0.4421 -0.2777 -0.2777 | ML 0.5103 8.9075 8.9351 0.9345 0.9545 0.9559 0.9559 0.9748 0.9517 0.9748 0.7124 0.7253 0.0 0.0 0.5103 1.00480 0.9572 0.9772 | 0.C 9.5509 C.109C 0.1500 0.2000 0.3000 0.4000 0.4000 0.4000 0.4000 0.4000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | CP 0.5634 -0.1502 -0.2804 -0.2804 -0.3480 -0.3480 -0.3480 -0.3480 -0.3231 -0.0271 0.0271 0.0270 0.0270 -0.0273 -0. | ML 0.53 3.56 3.72 0.53 0.56 0.57 0.96 0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78 |
| UPPER 1 2 3 4 5 6 7 8 9 11 12 13 14 15 | \$10E C.9 0.0250 0.0550 0.0750 0.1750 0.1750 0.2300 0.4200 0.4200 0.4200 0.4200 0.4300 0.4300 0.4300 0.50000 0.50000 0.5 | CP 2.702-2 3.028-7 3.018-7 3.018-7 3.018-7 3.019-7 | MU 0.4650 0.8150 0.8754 6.9255 0.9421 0.9757 0.9751 0.9751 0.9751 0.8716 0.7657 0.4650 0.7657 0.4650 0.9262 0.8616 0.8616 0.8616 | 0.0 0.0250 0.9550 0.1550 0.2000 0.2000 0.3000 0.5000 0.5000 0.6000 0.7000 0.6000 0.7000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000 | CP 0.6899 0.0960 0.0960 0.0960 0.0960 0.1569 0.1669 0.1400 0.1400 0.1801 0.3991 0.3991 0.017 0.1017 0.1022 0.017 0.1022 0.017 0.1022 0.017 0.1022 0.017 0.1022 | ML 0.4715 0.7760 0.7760 0.7897 0.9897 0.9212 0.9959 0.9956 0.9754 0.9754 0.9716 0.7716 0.7716 0.7750 0.7716 0.7650 0.7716 0.7650 0.7716 0.7650 0.7716 0.7650 0.7716 0.7650 0.7716 0.7650 0.7665 0.7667 0.9667 0.9667 0.9667 | 0.0 0.0503 0.1503 0.1503 0.2033 0.3000 0.4003 0.4003 0.4003 0.4003 0.000 0.000 0.000 0.000 0.000 0.000 0.1503 0.1503 0.1503 0.1503 0.1503 0.1503 0.1503 0.1503 0.1503 | CP 0.6168 -0.2246 -0.2246 -0.3169 -0.1016 -0.3169 -0.3169 -0.3590 -0.3791 -0.0510 0.0577 -0.0510 0.0577 -0.211 -0.0510 -0.4429 -0.3118 -0.4429 -0.3118 -0.2777 -0.2796 | ML 0.5103 0.9103 0.9351 0.9381 0.9381 0.9585 0.9559 0.9559 0.9559 0.9518 0.7144 0.7144 0.7144 0.7144 0.7144 0.7145 0.0 0.0 0.5133 1.004 0.9430 0.9275 0.9275 | 0.6 0.5500 0.1500 0.2000 0.3000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.0000 0.00000 0. | CP 0.1530 -0.1530 -0.2864 -0.2467 -0.3477 -0.2773 -0.2487 -0.1238 -0.0271 0. | ML 0.53 0.66 0.72 0.96 0.57 0.96 0.61 0.81 0.81 0.81 0.76 0.71 0.85 0.76 0. |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 14 15 14 5 6 7 | \$19E C.9 0.0250 0.0250 0.0250 0.0250 0.1500 0.1500 0.2000 0.2000 0.4000 0.4000 0.5000 0.6000 0.7000 0.8000 0.8000 0.3000 | CP 2.7025 -).0387 -).0189 -).2189 -).2189 -).1189 -).3198 | ML 0.4650 0.8154 0.755 0.9421 0.9759 0.9759 0.9751 0.9759 0.7757 0.4550 0.7657 0.4650 0.9759 0.7757 | 0.0 0.0250 0.05050 0.9750 0.15050 0.2000 0.3000 0.5000 0.7000 0.7000 0.9000 0.0503 0.1500 0.7000 0.1500 0.7000 | 6,899 0,689 0,056) -0,1569 -0,1262 -0,1004 -0,1402 -0, | ML 0.4715 0.7760 0.7760 0.7760 0.7760 0.9379 0.9420 0.9556 0.9754 0.9010 0.7716 0.7550 0.4716 0.7550 0.4716 0.7550 0.9022 0.9036 0.9022 0.9036 0.9022 | 0.0 0.0593 0.1593 0.2593 0.2393 0.3090 0.4093 0.4093 0.7990 0.9093 0.0 0.0 0.0 0.0 0.1593 0.1 | CP 0.6168 -0.2246 -0.27468 -0.3169 -0.3169 -0.3590 -0.3791 -0.3791 -0.3571 0.0577 0.1664 0.0 0.6168 -0.4429 -0.31791 -0.2777 -0.27893 -0.2777 -0.27893 | ML 0.5103 3.00/5 0.9391 0.9391 0.9545 0.9749 0.9749 0.9749 0.9749 0.7744 0.7744 0.7744 0.7745 0.00 0.5173 1.0046 0.9772 0.9772 0.9772 0.9773 | 0.C 0.3500 0.1500 0.1500 0.2000 0.3000 0.4000 0.4000 0.4000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0. | CP 0.1530 0.1530 0.7864 -0.2962 -0.3773 -0.3773 -0.3273 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3271 0.02 | ML 0.53 0.56 0.57 0.57 0.57 0.51 0.85 0.71 0.85 0.71 0.76 0.76 0.0 0.53 1.06 0.57 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 7 8 | \$10E C.9 J.0250 O.07550 O.07550 O.1550 O.2030 O.2030 O.4030 O.5030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.083 | CP 2.7025 | MU 0.4650 0.8139 0.8134 6.6255 0.9455 0.9455 0.9651 0.9559 0.9771 0.7713 0.9540 | 0.0 0.0250 0.0550 0.0550 0.0550 0.1000 0.1500 0.2000 0.3000 0.5000 0.7000 0.7000 0.0500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 | 6,822 0,682 0,050 0,050 0,150 0,250 0,250 0,100 0,400 0,400 0,400 0,400 0,334 0,334 0,100 0,400 0, | ML 0.4715 0.7760 0.7897 0.7897 0.7929 0.9929 0.9929 0.9956 0.9754 0.9754 0.9754 0.9754 0.9754 0.9754 0.9755 | 0.0 0.0593 7.1c93 0.1593 0.2393 0.3000 0.4003 0.7090 0.7090 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | CP 0.6168 -0.2246 -0.2246 -0.3169 -0.3169 -0.3169 -0.3169 -0.3590 -0.3791 -0.2511 -0.0510 0.0577 -0.1664 0.0 0.0 0.0 0.0 0.6168 -0.4420 -0.3118 -0.2772 -0.2792 -0.2792 -0.2792 | ML 0.5103 0.9331 0.9331 0.9331 0.9331 0.9545 0.9559 0.9559 0.9559 0.9515 0.902 0.7253 0.0 0.0 0.5103 1.0046 0.4231 0.8275 0.0 0.9572 0.9774 0.9744 0.8747 0.9744 0.8747 0.9744 0.8747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 | 0.6 0.5500 0.1500 0.2000 0.3000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.0000 0.00000 0. | CP 0.1530 -0.1530 -0.2864 -0.2467 -0.3477 -0.2773 -0.2487 -0.1238 -0.0271 0. | ML 0.53 0.66 0.57 0.57 0.51 0.78 0.78 0.78 0.78 0.78 0.78 0.76 0.00 0.53 1.06 0.53 1.06 0.54 0.54 0.54 0.53 0.54 0.53 |
| UPPER 1 2 3 4 5 6 7 8 9 1 1 1 1 2 2 3 4 5 6 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | \$19E C.9 0.0250 0.0250 0.0250 0.0250 0.1500 0.2000 0.4000 | CP 2.7025 -).0387 -).0189 -).0189 -).0189 -).1189 -).1189 -).1398 -). | ML 0.4650 0.8139 0.8139 0.8139 0.8255 0.9251 0.9751 0. | 0.0 0.0505 0.0505 0.0505 0.0505 0.1505 0.2000 0.4000 0.8000 0.7000 0.9000 0.1500 0.9000 0.1500 0.9000 0.1500 0.9000 0.1500 0.9000 0 | CP 0.6823 0.0950 0.1559 0.1252 0.1004 0.11569 0.2622 0.1004 0.1400 0.1102 0.1400 0.1013 0.1013 0.1013 0.1013 0.1013 0.1013 0.1013 0.1013 0.1013 | ML 0.4715 0.7760 0.8897 0.922 0.9379 0.9420 0.9556 0.9756 0.9756 0.7710 | 0.0 0.0593 0.1093 0.2030 0.2030 0.3000 0.4003 0.4000 0.4000 0.9003 0.0000 0.0000 0.1593 0.2000 0.1593 0.2000 0.4000 0.4000 0.4000 | CP 0.6168 -0.2246 -0.2746 -0.3169 -0.3169 -0.3590 -0.3791 -0.3713 -0.0577 -0.0510 0.6168 -0.4429 -0.4429 -0.3777 -0.27883 -0.2777 -0.27883 -0.1963 -0.1963 -0.1963 -0.1963 | ML 0.5103 3.00/5 0.9391 0.9391 0.9545 0.9749 0.9749 0.9749 0.9749 0.7744 0.7744 0.7744 0.7745 0.00 0.5173 1.0046 0.9772 0.9772 0.9772 0.9773 | 0.C 0.3500 0.1500 0.1500 0.2000 0.3000 0.4000 0.4000 0.4000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0. | CP 0.1530 0.1530 0.7864 -0.2962 -0.3773 -0.3773 -0.3273 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3281 -0.3271 0.02 | ML 0.531 0.65 0.72 0.96 0.57 0.96 0 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 7 8 | \$10E C.9 J.0250 O.07550 O.07550 O.1550 O.2030 O.2030 O.4030 O.5030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.8030 O.083 | CP 2.7025 | MU 0.4650 0.8139 0.8134 6.6255 0.9455 0.9455 0.9651 0.9559 0.9771 0.7713 0.9540 | 0.0 0.0250 0.0550 0.0550 0.0550 0.1000 0.1500 0.2000 0.3000 0.5000 0.7000 0.7000 0.0500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 | CP 0.6822 0.0560 0.0560 0.0560 0.10569 0.10569 0.1004 0.1400 0.1400 0.1504 0.1504 0.1504 0.1007 0.1007 0.1007 0.1007 0.1007 0.1007 | ML 0.4715 0.7760 0.7897 0.7897 0.7929 0.9929 0.9929 0.9956 0.9754 0.9754 0.9754 0.9754 0.9754 0.9754 0.9755 | 0.0 0.0593 7.1c93 0.1593 0.2393 0.3000 0.4003 0.7090 0.7090 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | CP 0.6168 -0.2246 -0.2246 -0.3169 -0.3169 -0.3169 -0.3169 -0.3590 -0.3791 -0.2511 -0.0510 0.0577 -0.1664 0.0 0.0 0.0 0.0 0.6168 -0.4420 -0.3118 -0.2772 -0.2792 -0.2792 -0.2792 | ML 0.5103 0.9331 0.9331 0.9331 0.9331 0.9545 0.9559 0.9559 0.9559 0.9515 0.902 0.7253 0.0 0.0 0.5103 1.0046 0.4231 0.8275 0.0 0.9572 0.9774 0.9744 0.8747 0.9744 0.8747 0.9744 0.8747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 0.9747 | 0.0 0.1000 0.1000 0.1000 0.2000 0.3000 0.5000 0.5000 0.0000 0 | CP 9.624 9.1550 9.7952 9.1477 9.3752 9.4477 9.3752 9.4477 9.3752 9.3 | ML 0.537 0.66 0.92 0.537 0.96 0.91 0.813 0.748 0.748 0.748 0.763 0.0 |

Table 3.5: Pressure data ($M = 0.8 \quad \alpha = -2^{\circ}$)

| | | SECTION | 1115 | | SECTION | 1 1 | | SECTION | 2 | | SECTION | 1 |
|--|--|---|--|--|---|--|--|--|--|--|---|--|
| NR | 1/1 | CP | 41 | X/C | CF | 111. | 1/5 | CP | ML | X/C | CP | 41 |
| UPPER | | | | | | | | | | | | |
| 1 | 0.0 | 0.0443 | 0.3825 | 0.0 | 0.7674 | 0.4291 | 0.0 | 0.7382 | 0.4451 | 0.0 | 0.6997 | 0.4109 |
| 2 | 0.0250 | -0.1707 | 0.8870 | 0.02.0 | -0.3650 | 0.9661 | 0.0250 | -0. 1193 | 0.7463 | 0.0250 | -0.3831 | 0.3768 |
| 3 | 0.0500 | -0.3410 | 0.9564 | 0.0500 | -0.4713 | 1.0165 | 0.0500 | -0.4605 | 1.0177 | 0.0500 | -0.5747 | 1.3477 |
| • | 0.0750 | -0.3448 | 0.9540 | 0.0750 | -0.4325 | 0.9984 | 0.0750 | -0.4965 | 1.030 | 0.0750 | -0.5440 | 1.7746 |
| 5 | 0.1000 | -0.3076 | 0. 7405 | 0.1000 | -0.3794 | 0.9737 | 0.1000 | -0.4501 | 1.0081 | 0.1303 | -0.5111 | 1.0176 |
| 6 | 0.1500 | -7-2576 | 0.3555 | 0.1500 | -0.3313 | 0.9511 | 0.1500 | -0.3931 | 0.9836 | 0.1500 | -0.4669 | 1.0'41 |
| 7 | 0.2000 | -0.3219 | 0.7473 | 0.2000 | -0.3859 | 2.97'7 | 0.5000 | -0.4255 | C. CCAT | 0.2300 | -n. 4 817 | 1.0000 |
| | 0.3000 | -0.3323 | 0.9520 | 0.3000 | -0.4037 | 0.9953 | 0.3000 | -0.4432 | 1.0050 | 0.3000 | -0.4977 | 1.0104 |
| 9 | 0.4000 | -0.1413 | 0.9554 | 0.4000 | -0.3917 | 0.9777 | 0.4000 | -0.4344 | 1.0008 | 0.4000 | -0.4527 | 1.0221 |
| 10 | 0.5000 | -0.1892 | 0.7789 | 0.5000 | -0.4171 | 0.9911 | 9.5000 | -0.4457 | 1.0065 | 0.5000 | -0.4405 | 1.0170 |
| 11 | 0.4000 | -0.3365 | 0.9537 | 0.6000 | -0.3527 | 0.5410 | 0.6000 | -0.7719 | 0.9715 | 0 000 | -0.1075 | 6 |
| 12 | 0.7000 | -0.2695 | 0.7227 | 0.7000 | -0.2652 | 0.920H | 0.7000 | -0.2368 | 0.9081 | 0.1000 | -0.2181 | 0.0004 |
| 13 | 0.8000 | -0.1323 | 0.9579 | 0.8000 | -0.1079 | 0.8495 | 0.8000 | -0.0845 | 0.8185 | 0.8300 | -0.06.02 | 0.4711 |
| 14 | 0.0000 | -0.0206 | 0.4093 | 0.9000 | 0.00P? | 0.7969 | 0.0100 | 0.0195 | 0.7711 | 0.7000 | 0.0203 | 0. 7473 |
| 15 | 1.0000 | 0.0911 | 0.7577 | 1.0000 | 0.1744 | 0.7440 | 1.0000 | 0.1735 | 0.7444 | 1.0000 | 0.1766 | 0.7414 |
| LOWER | 211.6 | | | | | | | | | | | |
| 1 | 2.0 | 0.5443 | 0.3825 | 0.0 | 0.7674 | 0.4281 | 0.0 | 0. 7392 | 0.4451 | 0.0 | 0.4 207 | 0.4739 |
| 5 | 0.0500 | 0.1160 | 0.7475 | 0.0500 | 0.0.50 | 0.7767 | 0.0500 | 0.0705 | 0.7914 | 0.0500 | 3.7169 | 3.7919 |
| 3 | 0.1000 | 0.0995 | 0.7550 | 0.1000 | 0.0522 | 0.7769 | 0.1000 | 0.0362 | 0.7845 | 0.1300 | -0.0062 | 0.0011 |
| • | 0.1500 | 0.0567 | 0.7743 | 0.1500 | 0.0117 | 0.7951 | 0.1500 | 0.0052 | 0.7986 | 0.1500 | -0.9416 | 0.9193 |
| 5 | 0.2000 | 0.0242 | 0.7891 | 0.2000 | -0.0240 | 0. 11 10 | 0.2000 | -0.0353 | U. 8165 | 0.2300 | -0.0414 | 0 1 |
| 5 | 0.4000 | -0.1217 | 0.8551 | 0.4000 | -0.1793 | 0.8818 | 0.4000 | -0.1868 | 0.8850 | 0.4000 | -0.1 094 | 0.0956 |
| | 0.5000 | -0.1570 | 0.8736 | 0.5000 | -0.1660 | 0.8757 | 0.5000 | -0.1579 | 0.8713 | 0.5000 | -0.1507 | 0. PARA |
| 8 | 0.6000 | -0.0791 | 0.8354 | 0.6000 | -0.0598 | 0.8273 | 0.5000 | -0.0574 | 0.8235 | 0.6000 | -0.0389 | 0.4179 |
| | 0.8000 | 0.0754 | 0.7662 | 0. 8000 | 0.0897 | 0.7600 | 0.4000 | 0.1061 | 0.7515 | 0.000 | 0.1290 | 0.7474 |
| 10 | 0.9000 | 0.1098 | 0.7511 | 0.9000 | 0.1300 | 0.7419 | 0.4000 | 0.1431 | 0.7347 | 0. 2000 | 0.1463 | 0.7142 |
| 11 | 1.0000 | 0.0911 | 0.7592 | 1.0000 | 0-1244 | 0.7440 | 1.0000 | 0.1235 | 0.7444 | 1.0000 | 0.1248 | 0.7438 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| NP | */5 | SICTION | | */5 | SECTION | 5 | */5 | 275 11 24 | | */5 | SECTION | 7 |
| NR | X/C | CP | 41 | ×/C | SECTION | | */C | 2751170 | ML | x/C | CECTION | |
| UPPER | SIDE | CP | ML | | C.P. | ••• | | C.P. | ME | 1507.50 | CP | •(|
| UPPER | 0.0 | 0.6871 | 91. | 0.0 | 9.4434 | 0.4354 | 0.0 | CP 3.7745 | 0.4779 | 0.0 | 0.6776 | 0.4.93 |
| UPPER | SIDE | 0.6891 -0.4204 | ML 0.4717 0.9933 | 0.0 | 9.4434 -0.3497 | 0.4254 | 0.0 | 7.745 -0.7114 | ML 0.4179 1.1190 | 0.0 | 0.6776 -0.6797 | 0.6.793 |
| UPPER 1 2 | 0.0 0.0250 | 0.6871 | 0.4717 0.9933 1.0726 | 0.0 0.0250 0.0500 | 0.4434 -0.3497 -2.1981 | 0.4354 0.3607 1.0807 | 0.0 | 0.745 -0.7136 -0.771 | 0.4779 | 0.0 | 0.6776 -0.6777 -0.6029 | 0.4.93 |
| UPPER 1 2 | 0.0 0.0250 0.0500 | 0.6871 -0.4204 -0.5838 -0.5782 | ML 0.4717 0.9933 | 0.0 | 9.4434 -0.3497 | 0.4364 0.9607 1.0907 1.0947 | 0.0 0.0500 0.1000 | 7.745 -0.7114 | ML 0.4179 1.1190 1.2293 | 0.0 0.0500 0.1000 0.1500 | 0.6776 -0.6797 | 0.0 **** 1.1037 1.0 **26 |
| UPPER 1 2 3 | SIDE 0.0 0.0250 0.0500 0.0750 | 0.6831 -0.4204 -0.5838 | ML 0.4717 0.9933 1.0726 1.0696 | 0.0 0.0250 0.0500 0.0750 | 9.4434 -0.4437 -3.1391 -0.654 | 0.4354 0.3607 1.0807 | 0.0 0.0500 0.1000 0.1500 | 0.745 -0.7114 -0.7171 -0.5174 | ML 0.4779 1.1790 1.0090 1.0057 | 0.0 | 0.6776 -0.6797 -0.6629 | 0.6 793 |
| UPPER 1 2 3 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 | 0.6891 -0.4204 -0.5838 -0.5782 -0.5741 | ML 0.4717 0.9933 1.0726 1.0696 1.0666 | 0.0 0.0250 0.0500 0.0750 0.0750 | 0.4434 -0.4437 -0.4437 -0.6754 -0.6754 | 0.4364 0.3607 1.0907 1.0947 1.0963 | 0.0 0.0500 0.1200 0.1500 0.2200 | 7.745 -0.7114 -0.7111 -0.7171 -0.5659 | ML 0.4779 1.1790 1.0793 1.0657 1.0628 | 0.0 0.0500 0.1000 0.1500 0.7000 | 0.6776 -0.6797 -0.6029 -0.461 | 1.0726 |
| UPPER 1 2 3 4 5 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | 0.6871 -0.4204 -0.5838 -0.5782 -0.5741 -0.5325 | 90.4717 0.9933 1.0726 1.0696 1.0666 | 0.0 0.0250 0.0500 0.0750 0.0750 0.1000 0.1500 | 0,4414 -0.4417 -0.4654 -0.4092 -0.5607 | 0.4354 0.9607 1.0907 1.0967 1.0967 | 0.0 0.0500 0.1200 0.1500 0.2200 0.1000 | 0.745 -0.7174 -0.7171 -0.6174 -0.5659 -0.557 | 0.4777 1.1190 1.0093 1.0657 1.0628 1.0560 | 0.0 0.0500 0.1000 0.1500 0.7000 0.7000 | 0.6776 -0.677 -0.6027 -0.6027 -0.467 -0.467 | 0,6 793 1,1039 1,0826 1,7599 1,0740 1,0272 |
| UPPER 1 2 3 4 5 6 7 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | 0.6891 -0.4204 -0.5383 -0.5782 -0.5741 -0.5325 -0.5316 | 0.4717 0.9933 1.0726 1.0696 1.0666 1.0461 1.0462 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | 9,7434 -0,1437 -0,1437 -0,6,54 -0,6,097 -0,5607 -0,5497 | 0.4954 0.9607 1.0907 1.0942 1.0969 1.0616 | 0.0 0.0500 0.1700 0.1500 0.2700 0.1000 | 0.745 -0.7174 -0.7174 -0.5274 -0.5659 -0.557 | 0.2779 1.1190 1.0093 1.0657 1.0628 1.0560 1.0423 | 0.0 0.0500 0.1000 0.1500 0.7000 0.3000 0.4000 | 0.6776 -0.6797 -0.6029 -0.461 -0.461 | 1.1039 1.0826 1.7599 1.0740 1.0272 0.0272 |
| UPPER 1 2 3 4 5 6 7 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.1000 | 0.6871 -0.4204 -0.5838 -0.5782 -0.5741 -0.5325 -0.5316 -0.5343 -0.5040 | 94. 0.4717 0.9933 1.0726 1.0676 1.0666 1.0461 1.0462 1.0462 | 0.9 0.0250 0.0500 0.0750 0.1000 0.1500 0.2003 0.3000 | 9,4434 -0,4434 -0,4437 -0,634 -0,607 -0,5607 -0,5437 -0,5450 | 0.4964 0.9607 1.0907 1.0967 1.0967 1.0616 1.0565 1.0541 | 0.0 0.0500 0.1700 0.1500 0.2200 0.3000 0.4000 | 0.745 -0.7114 -0.7114 -0.559 -0.559 -0.577 -0.5204 -0.4693 | ML 0.4179 1.1190 1.0090 1.0657 1.0628 1.0560 1.0423 1.0173 | 0.0 0.0500 0.1000 0.1500 0.7000 0.3000 0.4000 | 0.6776 -0.677 -0.6027 -0.6027 -0.467 -0.4952 -0.4194 | 0.6793 1.1033 1.0826 1.0740 1.0740 1.0740 1.0740 0.0479 0.0479 |
| UPPER 1 2 3 4 5 6 7 8 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.5000 | 0.6871 -0.4204 -0.5838 -0.5782 -0.5741 -0.5325 -0.5316 -0.5343 | 0.4717 0.9933 1.0726 1.0676 1.0666 1.0461 1.0462 1.0460 1.0332 | 0.9 0.0250 0.0500 0.0750 0.1500 0.1500 0.2003 0.4000 | 0.4434 -0.4437 -0.634 -0.634 -0.6092 -0.5607 -0.5450 -0.5149 | 0.4364 0.2607 1.0807 1.0842 1.0863 1.0616 1.0565 1.0541 1.0411 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.745 -0.114 -0.114 -0.111 -0.5659 -0.677 -0.5204 -0.4493 -0.1875 -0.1678 -0.9549 | M(0.4779 1.1190 1.0290 1.0457 1.0458 1.0560 1.0423 1.0173 0.9783 0.8754 0.8250 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.6776 -0.6777 -0.6029 -0.463 -0.463 -0.4952 -0.4194 -0.7488 | 0.6 793 1.1039 1.0826 1.0540 1.0540 1.0572 0.0928 0.0455 |
| UPPER 1 2 3 4 5 6 7 6 9 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.6871 -0.4204 -0.5838 -0.5782 -0.5741 -0.5325 -0.5316 -0.5343 -0.5040 | ML 0.4717 0.9933 1.0726 1.0666 1.0666 1.0461 1.0462 1.0480 1.0332 1.0169 | 0.0 0.0250 0.0750 0.0750 0.1000 0.1500 0.2003 0.3000 0.4000 | 9.4434 -0.4437 -0.4437 -0.4234 -0.4092 -0.5607 -0.5497 -0.5490 -0.5199 -0.4815 | 0.4964 0.9607 1.0807 1.0867 1.0867 1.0866 1.0865 1.0841 1.0232 | 0.0 0.0500 0.1500 0.1500 0.2500 0.4000 0.6000 0.7000 | 0.7145 -0.7174 -0.7174 -0.5171 -0.5059 -0.5077 -0.506 -0.4673 -0.1678 | ML 0.6779 1.1190 1.029 1.0657 1.0628 1.0560 1.0423 0.9783 0.9783 0.8250 0.7745 | 0.0 0.0500 0.1000 0.1500 0.7000 0.5000 0.5000 0.5000 0.7000 | 0.4776 -0.4797 -0.6029 -0.461 -0.461 -0.4952 -0.4194 -0.7489 -0.1723 | 0.6 793 1.1039 1.0826 1.0540 1.0542 0.0445 0.0445 0.0459 0.0459 0.0459 |
| UPPER 1 2 3 4 5 6 7 6 9 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.5000 | 0.6871 -0.4204 -0.5838 -0.5782 -0.5741 -0.5325 -0.5316 -0.5343 -0.5040 -0.4124 | ML 0.4717 0.9933 1.0726 1.0696 1.0666 1.0461 1.0462 1.0460 1.0332 1.0169 0.9925 | 0.9 0.0250 0.0750 0.0750 0.1000 0.1500 0.2003 0.3660 0.4000 0.5000 | 0,4434 -0.4427 -0.4624 -0.6654 -0.6607 -0.5607 -0.5497 -0.5490 -0.5189 -0.4815 -0.917 | 0.4264 0.2407 1.0807 1.0842 1.0860 1.0616 1.0565 1.0541 1.0411 1.0232 0.3805 | 0.0 0.0500 0.1500 0.1500 0.2200 0.3000 0.4000 0.6000 0.7000 0.8000 | 0.745 -0.114 -0.114 -0.111 -0.5659 -0.677 -0.5204 -0.4493 -0.1875 -0.1678 -0.9549 | M(0.4779 1.1190 1.0290 1.0457 1.0458 1.0560 1.0423 1.0173 0.9783 0.8754 0.8250 | 0.0 0.0500 0.1000 0.1000 0.2000 0.3000 0.4000 0.5000 0.7000 0.7000 | 0.6776 -0.6737 -0.6023 -0.461 -0.4652 -0.4194 -0.3414 -0.7468 -0.7468 -0.1733 -0.0473 | 0.4 743 1.1037 1.0826 1.0532 0.4532 0.4532 0.4532 0.4530 0.4530 0.4536 0.4536 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.6001 0.7000 0.6000 0.6000 | 0.6891 -0.4204 -0.5838 -0.5782 -0.5741 -0.5225 -0.5343 -0.5040 -0.4702 -0.4124 -0.1867 -0.0708 | 0.4717 0.9933 1.0726 1.0666 1.0666 1.0461 1.0462 1.0480 1.0332 1.0169 0.9935 0.7886 0.7880 | 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2003 0.3000 0.4000 0.5000 0.7000 | 0.4414 -0.4427 -0.4917 -0.654 -0.492 -0.5697 -0.55497 -0.5189 -0.4815 -0.3917 -0.1936 | 0.4964 0.9607 1.0907 1.0947 1.0947 1.0616 1.0565 1.0541 1.0411 1.0332 0.9405 0.9405 | 0.0 0.0500 0.1700 0.1500 0.2700 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 | 7,745 -0.7174 -0.7174 -0.1717 -0.559 -0.577 -0.5204 -0.4693 -0.1678 -0.1678 -0.0549 | M(0.4779 1.1790 1.0457 1.0628 1.0628 1.0423 1.0173 0.9783 0.8750 0.7745 0.7738 | 0.0 0.0500 0.1000 0.1500 0.7000 0.7000 0.5000 0.5000 0.7000 | 0.4776 -0.6107 -0.6020 -0.461 -0.4057 -0.4104 -0.3418 -0.7468 -0.1723 -0.0473 -0.0473 | 0.4 743 1.1037 1.0826 1.0540 1.0540 1.0522 0.0425 0.0425 0.0425 0.0425 0.0425 0.0425 0.0425 |
| UPPER 1 2 3 5 6 7 8 9 10 11 12 13 14 | \$10f 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.2000 0.3000 0.5000 0.7000 0.7000 0.7000 0.7000 | 0.6891 -0.4204 -0.5838 -0.5782 -0.5781 -0.5325 -0.5343 -0.5040 -0.4702 -0.4124 -0.1867 -0.0708 | ML 0.4717 0.9933 1.0726 1.0696 1.0666 1.0461 1.0462 1.0480 1.0332 1.0169 0.9935 0.8846 0.8315 | 0.0 0.0250 0.0750 0.0750 0.1500 0.1500 0.2003 0.3660 0.4000 0.5000 0.6000 0.6000 | 0,7434 -0.4927 -0.4927 -0.4927 -0.5607 -0.5497 -0.5497 -0.4815 -0.917 -0.1936 -0.1936 | 0.4264 0.2607 1.0807 1.0847 1.0616 1.0616 1.0565 1.0541 1.0232 0.2805 0.8701 | 0.0 0.0500 0.1500 0.1500 0.2500 0.4000 0.4000 0.6000 0.7000 0.8000 0.9000 1.9000 | 0.1745 -0.1174 -0.1174 -0.559 -0.557 -0.569 -0.4693 -0.4693 -0.1678 -0.1678 -0.0549 -0.570 -0.1678 | ML 0.4779 1.1190 1.0627 1.0628 1.0560 1.0423 1.0173 0.9783 0.8754 0.8754 0.7745 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.5000 0.5000 0.5000 | 0.4776 -0.4707 -0.6029 -0.4612 -0.4952 -0.4194 -0.7418 -0.7418 -0.7478 -0.1273 -0.1078 | 0.4 743 1.1037 1.0826 1.0532 0.4532 0.4532 0.4532 0.4530 0.4530 0.4536 0.4536 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.6001 0.7000 0.6000 0.6000 | 0.6891 -C.4204 -0.5828 -0.5782 -0.5781 -0.5225 -0.5316 -0.5343 -0.5040 -0.4702 -0.4124 -0.1867 -0.0708 0.0251 | 0.4717 0.9933 1.0726 1.0626 1.0646 1.0661 1.0662 1.0480 1.0332 1.0169 0.935 0.8846 0.8315 0.7880 | 0.0 0.0250 0.0550 0.0750 0.1500 0.2003 0.3660 0.4000 0.7003 0.4000 0.7003 0.4000 0.7000 | 0,7434 -0.4437 -0.4437 -0.454 -0.454 -0.4507 -0.5437 -0.5437 -0.5189 -0.4815 -0.133 -0.0644 0.0245 0.1133 | 0.4964 0.9607 1.0907 1.0967 1.0616 1.0565 1.0541 1.0411 1.0232 0.905 0.805 0.805 0.805 | 0.0 0.0500 0.1500 0.1500 0.2000 0.4000 0.4000 0.6000 0.7000 0.8000 0.9000 1.9000 | 0.7145 -0.7114 -0.1714 -0.5059 -0.5057 -0.5059 -0.4693 -0.1878 -0.1678 -0.1678 -0.0540 0.0570 0.1570 | M(0.2779 1.1790 1.0790 1.0657 1.0628 1.073 0.9783 0.9783 0.8755 0.7745 0.7738 | 0.0 0.0500 0.1500 0.1500 0.7000 0.4000 0.5000 0.6000 0.7000 0.9000 0.9000 | 0.4776 -0.6107 -0.620 -0.461 -0.461 -0.465 -0.1104 -0.7468 -0.123 -0.1008 0.0008 | 0.6 793 1.1039 1.0726 1.0740 1.0740 1.0740 0.0445 0.0445 0.0445 0.0476 0.8590 0.8796 0.7410 0.7410 |
| UPPER 1 2 3 5 6 7 8 9 10 11 12 13 14 | SIDE 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 | 0.6891 -0.4204 -0.5838 -0.5741 -0.5525 -0.5316 -0.5343 -0.5040 -0.4702 -0.4124 -0.1867 -0.0708 0.0221 0.1230 | 0.4717 0.993 1.0726 1.0666 1.0666 1.0461 1.0462 1.0462 1.0332 1.0169 0.9935 0.9836 0.7446 | 0.0 0.0250 0.0250 0.0750 0.1500 0.1500 0.2003 0.3060 0.4000 0.5000 0.7003 0.7003 0.9000 1.0000 | 9,4434 -0.4427 -0.4027 -0.4027 -0.5607 -0.5437 -0.4650 -0.5149 -0.4815 -0.3917 -0.1936 -0.0644 0.0245 0.1133 | 0.4964 0.9607 1.0907 1.0907 1.0967 1.0616 1.0565 1.0541 1.0411 1.0232 0.9905 0.8901 0.7490 | 0.0 0.0500 0.1500 0.1500 0.2000 0.4000 0.4000 0.6000 0.7000 0.8000 0.9000 1.0000 0.000 | 0.745 -0.714 -0.7171 -0.004 -0.659 -0.657 -0.875 -0.1678 -0.1678 -0.0570 0.1670 0.0570 | ML 0.2777 1.1790 1.0790 1.0657 1.0658 1.0560 1.0423 1.0773 0.9783 0.9783 0.7745 0.77238 0.9 | 0.0 0.0*00 0.1*00 0.1*00 0.7000 0.4000 0.4000 0.5000 0.9000 0.9000 0.9000 | 0.6776 -0.6029 -0.4057 -0.4057 -0.4194 -0.4194 -0.7468 -0.7468 -0.7468 -0.7468 -0.7468 -0.7468 -0.7468 -0.9668 0.0068 | 0. (743 1 1 0 746 1 1 0 740 1 1 0 740 1 1 0 740 1 0 741 0 0 8450 0 0 7410 0 7410 0 0 0 7410 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 LOWER 1 2 | SIDE 0.0 0.0250 0.0550 0.0750 0.1000 0.1000 0.3090 0.4000 0.5000 0.7090 0.6001 1.0000 517e 0.0000 | 0.6891 -C.4204 -0.5828 -0.5782 -0.5781 -0.5316 -0.5316 -0.5343 -0.5040 -0.4702 -0.4124 -0.1867 -0.0708 0.0251 0.1230 | 0.4717 0.4933 1.0726 1.0626 1.0666 1.0661 1.0662 1.0482 1.0182 1.0189 0.9925 0.4846 0.7880 0.7446 | 0.0 0.0250 0.0750 0.0750 0.1500 0.2003 0.3000 0.4000 0.5000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0,7414 -0.4427 -0.791 -0.654 -0.654 -0.657 -0.5427 -0.5427 -0.5149 -0.917 -0.1136 -0.0644 0.0245 0.1133 | 0.4264 0.2607 1.0807 1.0807 1.0867 1.0616 1.0616 1.0565 1.0541 1.0411 1.0232 0.9805 0.8801 0.7490 0.7490 | 0.0 0.0500 0.1500 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 0.7000 0.7000 | 0.745 -0.114 -0.1171 -0.1171 -0.559 -0.657 -0.469 -0.469 -0.1678 -0.1678 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 -0.1679 | ML 0.4779 1.1790 1.0797 1.0628 1.0628 1.0628 1.0628 1.0783 0.4773 0.4774 0.000 0.4774 0.4774 0.4774 0.4774 0.4774 0.4774 0.4774 0.4774 | 0.0 0.1500 0.1000 0.1000 0.2000 0.2000 0.4000 0.5000 0.7000 0.9000 1.0100 0.0 | 0.6776 -0.629 -0.629 -0.661 -0.461 -0.461 -0.415 -0.248 -0.125 -0.127 0.0168 0.068 0.06774 -0.1422 | 0.6793 1.0926 1.0540 1.0540 1.0542 0.9445 0.9445 0.9445 0.9791 0.8790 0.8790 0.7791 0.7791 0.94797 0.7791 |
| UPPER 1 2 3 5 6 7 8 9 10 11 12 13 14 | SIDE 0.0 0.0250 0.0550 0.0550 0.1000 0.1500 0.2000 0.3000 0.5000 0.6001 0.7000 0.6001 0.7000 0.5000 0.6001 0.7000 0.5000 0.0500 | 0.6891 -C.4204 -0.5828 -0.5781 -0.5255 -0.5343 -0.5040 -0.4124 -0.1867 -0.0708 0.02251 0.0128 -0.0128 | 0.4717 0.993 1.0726 1.0696 1.0666 1.0666 1.0461 1.0480 1.0132 1.0189 0.9935 0.9886 0.7880 0.7446 | 0.0250 0.0250 0.0750 0.0750 0.1000 0.2003 0.3000 0.4000 0.7000 0.7003 0.7003 0.9000 1.0000 | 0.4434 -0.4437 -0.4437 -0.4032 -0.4032 -0.5607 -0.5547 -0.4815 -0.4815 -0.1034 -0.0644 0.0245 0.1133 | 0.4964 0.9767 1.0997 1.0947 1.0947 1.0966 1.0565 1.0541 1.0411 1.0212 0.9805 0.8906 0.7490 0.7490 | 0.0 0.0590 0.1590 0.1590 0.2590 0.4000 0.4000 0.6000 0.7000 0.7000 1.9000 1.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 | 0.745 -0.1171 -0.1171 -0.559 -0.570 -0.477 -0.1678 -0.1678 -0.1678 -0.1678 -0.0506 -0.0506 -0.0506 -0.0507 | M(0.4779 1.1190 1.0049 1.0049 1.0049 1.0049 1.0049 0.0773 0.07745 0.7728 0.00 0.00 0.4779 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0 | 0.0 0.0*00 0.1000 0.1000 0.7000 0.4000 0.5000 0.7000 0.9000 0.9000 0.000 | 0.4776 -0.4776 -0.4627 -0.4627 -0.4652 -0.1194 -0.4752 -0.1194 -0.7478 -0.7478 -0.1193 -0.9473 -0.9473 -0.9473 -0.9473 -0.9473 -0.1427 -0.1427 -0.1427 -0.1427 -0.1427 | 0.6 793 1.1037 1.0720 1.0720 1.0720 0 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 4 | SIDE 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.4000 0.4000 0.7000 0.7000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.90000 0.900000 0.900000 0.90000 0.90000 0.90000 0.90000 0.900000 0.900000 0.90000 0.90000 0.90000000 0.90 | 0.6871 -0.4204 -0.58238 -0.5782 -0.5781 -0.5316 -0.5316 -0.5940 -0.4702 -0.4702 -0.4702 -0.4702 -0.0703 0.0251 0.1230 0.6891 0.0128 -0.0763 | HL 0.4717 0.993 1.0726 1.0966 1.0461 1.0462 1.0462 1.0482 1.0169 0.915 0.915 0.915 0.915 0.916 0.917 0 | 0.9 0.0250 0.0750 0.0759 0.1360 0.2003 0.3660 0.4000 0.5000 0.7003 0.9000 0.9000 0.9000 0.1500 | 9, 4434 -0, 4497 -7, 791 -0, 6754 -0, 695 -0, | 0.4954 0.7697 1.0997 1.0742 1.0969 1.0969 1.0565 1.0565 1.0561 1.0741 1.0742 0.3905 0.8701 0.7999 0.4765 0.4753 0.4753 0.4753 | 0.0 0.0500 0.1500 0.1500 0.2500 0.4000 0.4000 0.6000 0.7000 0.8000 0.8000 0.9000 1.9000 0.0000 0.1000 0.1000 0.1000 | 3,735 -0.134 -0.137 -0.137 -0.557 -0.557 -0.557 -0.4693 -0.4693 -0.1678 -0.1678 -0.1678 -0.1679 -0.1679 -0.1679 -0.1679 | ML 0.4779 1.1790 1.0790 1.0757 1.0560 1.0473 1.0473 0.4775 0.8755 0.7745 | 0.0 0.0*00 0.1000 0.1000 0.2000 0.2000 0.5000 0.5000 0.5000 0.5000 0.9000 0.000 0.000 0.000 | 0.6776 -0.6027 -0.6027 -0.4952 -0.4952 -0.194 -0.7458 -0.194 -0.1947 3.0108 0.000 0.000 | 0,4743 1.1022 1.0726 1.0740 1.0740 0.0453 0.4747 0.7407 0. |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 | SIDE 0.0 0.0250 0.0550 0.0560 0.0760 0.1000 0.2000 0.2000 0.5000 0.5000 0.6000 0.6000 0.6000 0.6000 0.6000 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 0.0500 | 0.6871 -0.4207 -0.5838 -0.5782 -0.5718 -0.5916 -0.5916 -0.5164 -0.1867 -0.0 | ML 0.4117 0.993 1.0726 1.0666 1.0666 1.0666 1.0666 1.0666 1.0666 1.0669 0.9735 0.7846 0.4119 0.7946 0.4119 | 0.9 0.0250 0.0750 0.0750 0.1750 0.1500 0.4000 0.4000 0.7003 0.4000 0.7003 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0.4434 -0.4497 -0.4091 -0.6254 -0.4092 -0.5097 -0.5481 -0.9197 -0.4815 -0.1936 | 0.4964 0.9697 1.0997 1.0969 1. | 0.0 0.0500 0.1500 0.2500 0.2000 0.4000 0.6000 0.6000 0.7000 0 | 3.7134 -0.7134 -0.7137 -0.7137 -0.5527 -0.5527 -0.5724 -0.4693 -0.1678 -0.1678 -0.1678 -0.0770 -0.0703 -0.0703 -0.0703 -0.0703 | ML 0.4779 1.1790 1.0790 1.0750 1.0750 1.0750 1.0775 0.8755 0.8755 0.7745 0.7745 0.7745 0.7747 0.0 0.0 0.4779 0.0 0.4779 0.8757 0 | 0.0 0.0500 0.1500 0.7000 0.7000 0.7000 0.7000 0.7000 0.9000 0.9000 0.9000 0.0000 0.0000 0.1300 | 0.6776 -0.6027 -0.6027 -0.4052 -0.414 -0.414 -0.2483 -0.173 -0.0473 -0.173 -0.000 -0.000 -0.000 -0.174 -0.11408 -0.174 | 0.4747 1.10726 1.0740 1.0740 1.0740 1.0740 1.0740 0.4747 0.4747 0.7410 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 4 | SIDE 0.0250 0.0250 0.050 0.0750 0.1000 0.1500 0.2000 0.4000 0.4000 0.700 | 0.691 -0.4204 -0.5838 -0.5782 -0.5716 -0.5316 -0.5316 -0.5 | #L 0.4117 0.993 1.0126 1.0046 1.0046 1.0046 1.0046 1.0046 1.0046 1.0046 1.0046 1.0046 0.904 0.90 | 0.9 0.0250 0.0750 0.0750 0.1750 0.1960 0.2003 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.1500 0.1500 0.1500 0.2003 0.1500 0.2003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.000 | 0.444 -0.443 -0.443 -0.495 -0.697 -0.697 -0.5497 -0.5497 -0.5497 -0.191 -0.191 -0.191 -0.191 -0.0245 -0.191 -0.0295 -0.0295 -0.0295 -0.0295 -0.0295 -0.0297 -0.0645 -0.0297 -0.045 -0.0297 -0.045 -0.0497 -0.0 | 0.4964 0.9607 1.0907 1.09607 1.0960 1.0960 1.0960 1.0960 1.0960 0.9905 0.8909 0.4964 0 | 0.0 0.0500 0.1500 0.2500 0.2000 0.4000 0.5000 0.7000 0.8000 0.9000 1.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 0.745 0.1174 0.1171 0.0174 0.0557 0.0577 0.1678 0.0740 0.0740 0.0740 0.0740 0.0740 0.0740 0.0740 0.0740 0.0740 0.0740 | ML 0.6.777 1.3.190 1.0.767 1.0.767 1.0.767 1.0.760 1.0.760 0.7736 0.7736 0.7736 0.959 0.7736 0.9736 0.8759 0.0.8759 0.0.8759 0.8751 0.8751 0.8751 0.8751 | 0.0 0.0500 0.1500 0.7500 0.7500 0.5000 0.5000 0.5000 0.9000 0.9000 0.9000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | CP 74 - 0.6774 - 0.6027 - 0.6027 - 0.6027 - 0.6027 - 0.6027 - 0.6027 - 0.614 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 - 0.746 | 0,6793 1.1075 1.075 1.075 1.075 1.075 0.075 0.075 0.075 0.075 0.075 0.75 0. |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 4 | SIDE 0.0 0.0250 0.0550 0.0560 0.1000 0.1500 0.2000 0.3099 0.4909 0.5900 0.6001 0.7090 0.6001 0.7090 0.9000 0.0500 0.1500 | 0.691 -0.4204 -0.5782 -0.5782 -0.5781 -0.5316 -0.5316 -0.5316 -0.5016 -0.1067 -0.1067 -0.0702 -0.1028 -0.1230 -0.6128 -0.0773 -0.0463 -0.0746 -0.1422 -0.1804 -0.1429 | 4L 0.4717 0.993 1.0726 1.0066 1.0066 1.0062 1.0130 1.0130 1.0130 1.0130 0.130 | 0.9 0.0250 0.3503 0.0750 0.1000 0.2003 0.3000 0.5000 0.5000 0.5000 0.7003 0.700 | 7.434 -0.464 -0.464 -0.665 -0.654 -0.567 -0.547 -0.547 -0.547 -0.191 -0.191 -0.0644 -0.0245 -0.103 -0.0102 -0.0643 -0.0643 -0.0645 -0.0245 -0. | 0.4964 0.9407 1.0907 1.0942 1.0960 1.0616 1.0565 1.0561 1.0561 1.0232 0.9705 0.8705 0.8705 0.8701 0.7499 0.7499 0.7490 0.7490 0.7490 0.7491 0.8764 0.7641 0.8764 0. | 0.0 0.0590 0.1790 0.1790 0.2290 0.4000 0.4000 0.4000 0.4000 0.7000 0.4000 0.7000 0.9000 0.9000 0.9000 0.0000 0.9000 0.00000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 | 0.745 0.7134 0.7134 0.7134 0.877 0.877 0.877 0.877 0.1878 0.1878 0.0573 0.1973 0.0785 0.0785 0.0790 0.0790 0.0790 0.01917 0.01348 | ML 0.4777 1.1790 1.0790 1.0757 1.0628 1.0750 1.0723 1.0773 0.9783 | 0.0 0.1500 0.1500 0.2000 0.2000 0.4000 0.500 | 0.6776 -0.6020 -0.6020 -0.4052 -0.4052 -0.4164 -0.7416 -0.7276 -0.1723 -0.0473 -0.0473 -0.000 -0.1622 -0.1744 -0.1498 -0.1498 -0.1498 | 0. (TAN 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 2 3 4 5 6 7 8 | SIDE 0.0 0.0250 0.0550 0.0550 0.1550 0.2000 0.1550 0.4900 0.5900 0.7093 0.5900 0.7093 0.5000 0.5000 0.1090 | 0.691 -0.4204 -0.5838 -0.5782 -0.5716 -0.5316 -0.5316 -0.5143 -0.506 -0.4124 -0.1866 -0.4124 -0.1866 -0.2251 0.1230 -0.0463 -0.0742 -0.0464 -0.1804 -0 | 4L 0.4117 0.993 1.0726 1.0726 1.0660 1.0661 1.0661 1.0732 1.0189 0.7946 0.7946 0.7946 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 0.4719 | 0.0 0.0750 0.0750 0.1960 0.1960 0.1960 0.2002 0.3660 0.4000 0.4000 0.7003 0.7003 0.7000 0.1900 0.1900 0.1900 0.1900 0.1900 0.1900 0.2000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000 | 0.4434 -0.4637 -0.605 -0.607 -0.5697 -0.5697 -0.5697 -0.5189 -0.917 -0.1736 -0.0717 -0.0643 -0.00645 -0.0065 -0.0065 -0.0065 -0.0 | 0.4964 0.2607 1.0767 1.0767 1.0767 1.0767 1.0767 1.0767 1.0767 1.0761 1.0767 0.7870 0.7870 0.7870 0.7870 0.8781 0.8787 0.8787 | 0.0 0.0590 0.1590 0.2590 0.2690 0.4600 0.7600 0.7600 0.7600 0.7600 0.7600 0.9000 0.9000 0.1190 0.2000 0.4000 0.9000 0 | 0.1745 -0.1174 -0.171 -0.0557 -0.5577 -0.5577 -0.1678 -0.0540 | ML 0.6.77 1.3.70 1.0.70 1.0.75 1.0.75 1.0.75 1.0.75 1.0.75 0.7745 0.7745 0.7745 0.9.75 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 0.0.7745 | 0.0 0.000 0.1000 0.1000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000000 | 0.4774 -0.6270 -0.6027 -0.6027 -0.404 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 -0.414 | 0.6 ***** 1.1037 1.0826 1.0740 1.0740 1.0740 1.0740 0.4740 0.8750 0.7410 0.0 0.7410 0.0 0.8750 0.8750 0.8750 0.8750 0.8750 0.8750 0.8750 0.8750 0.8750 0.8750 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 5 LOWER 1 2 3 4 5 6 7 8 9 9 | SIDE 0.0 0.0250 0.0550 0.0759 0.1070 0.1590 0.2000 0.2000 0.4900 0.6900 0.6900 0.6900 0.6900 0.0500 0.0500 0.1590 0.0500 0.0500 0.1590 0.2000 0.1590 0.2000 0.1590 0.2000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 0,691 -0.4204 -0.5782 -0.5782 -0.5781 -0.5916 -0.5916 -0.5916 -0.5016 -0.7024 -0.1067 -0.0702 | 0.4717 0.973 1.0726 1.0726 1.0726 1.0726 1.0726 1.0726 1.0726 1.0732 1.0169 0.7372 0.7372 0.7372 0.7372 0.7372 0.7372 0.8372 0.8372 0.8372 0.8472 0.8 | 0.9 0.0250 0.3760 0.1750 0.1750 0.1500 0.2003 0.3060 0.5000 0.5000 0.7003 0.700 | 0.6434 -0.4619 -0.6654 -0.6654 -0.6654 -0.5697 -0.5697 -0.5697 -0.1918 -0.917 -0.1936 -0.0643 | 0.4964 0.9607 1.0947 1.0947 1.0969 1.0965 1.0965 1.0941 1.0932 0.905 0.806 0.7490 0.7490 0.8764 0.87 | 0.0 0.0590 0.1790 0.1500 0.2790 0.0000 0.000 0.00000 0.0000 0.00000 0.0000 0.0000 0. | 0.7785 -0.7124 -0.7124 -0.571 -0.571 -0.572 -0.572 -0.572 -0.572 -0.573 -0.0542 -0.0573 -0.0543 -0.070 | ML 0.6179 1.1390 1.0457 1.0457 1.0458 1.0423 1.0423 1.0423 1.0423 0.8754 0.8754 0.8754 0.9783 0.8754 0.9783 0.8774 0.9784 0.8781 | 0.0 0.0 0.0 0.1 0.0 0.1 0.0 0.7000 0.7000 0.5000 0.5000 0.7000 0.7000 0.0 0.0 0.0 0.0 0.0 0. | 0.4774 -0.4774 -0.4027 -0.401 -0.401 -0.401 -0.4104 -0.4104 -0.4104 -0.102 -0.1 | 0.0740 1.030 1.030 1.030 1.030 1.030 1.030 1.030 1.030 0.040 0.040 0.040 0.070 0.0000 0.00 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 8 9 10 | SIDE 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.2000 0.4000 0.7000 0.7000 0.7000 0.1000 0.0000 | 0.691 -0.4204 -0.5828 -0.5782 -0.5781 -0.5252 -0.5913 -0.5913 -0.5913 -0.5913 -0.4124 -0.1867 -0.1867 -0.1230 -0.251 0.1230 -0.251 0.1230 -0.251 0.1230 -0.251 0.1230 -0.1230 -0.1230 -0.1230 -0.1422 -0.1422 -0.1867 | **L 0.4117 0.4913 1.0726 1.0646 1.0646 1.0462 1.0461 1.0462 0.7315 0.7846 0.7315 0.7446 0.4719 0.7746 0.4719 0.8818 0.8742 0.8818 0.8742 0.8748 0.77408 0.77408 | 0.0 0.0750 0.0760 0.1960 0.1960 0.1960 0.2060 0.3060 0.4060 0.4060 0.4060 0.4060 0.4060 0.4060 0.1960 0.1960 0.1960 0.1960 0.1960 0.2060 0.1960 0.406 | 7.634 7.6437 7.6437 7.658 -0.678 -0.678 -0.678 -0.5607 -0.5497 -0.4815 -0.4815 -0.1936 -0.0645 0.0292 -0.0645 -0.0292 -0.0645 -0.00292 -0.0645 -0.00292 -0.0645 -0.00292 -0.0645 -0.00292 -0.0045 -0.0045 -0.0045 -0.0045 -0.0046 -0.0 | 0.4040 0.7607 1.0907 1.0907 1.0940 1.0565 1.0565 1.0561 1.0561 1.0561 1.0741 1.0732 0.7805 0.7809 0.7490 0.7490 0.7490 0.8703 0.8705 0. | 0.0 0.0590 0.1590 0.2590 0.3600 0.4000 0.7000 0.7000 0.7000 0.7000 0.7000 0.9000 0.9000 0.1190 0.2000 0.4000 0.1190 0.5000 0.4000 0 | 0.745 -0.7134 -0.7131 -0.1314 -0.1316 -0.1021 -0.4031 | ML 0.477 1.179 1.179 1.079 1.079 1.075 1.0628 1.077 1.0628 1.0773 0.7783 0.7783 0.7783 0.7783 0.7783 0.7783 0.785 0.785 0.785 0.785 0.785 0.785 0.785 0.785 0.786 0.786 0.786 0.786 0.786 | 0.0 0.000 0.1000 0.1000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.0000 0.0000 0.1000 0.1000 0.1000 0.20000 0.200000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.20000 0.2 | CP 74 74 74 74 74 74 74 74 74 74 74 74 74 | 0.6 **** 1.1037 1.0726 1.0740 1.0740 1.0740 1.0740 0.4741 0.7410 0.07410 0.07410 0.07410 0.07410 0.07470 0.8750 0.8750 0.8750 0.7474 0.8750 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 8 9 9 | SIDE 0.0 0.0250 0.0550 0.0759 0.1070 0.1590 0.2000 0.2000 0.4900 0.6900 0.6900 0.6900 0.6900 0.0500 0.0500 0.1590 0.0500 0.0500 0.1590 0.2000 0.1590 0.2000 0.1590 0.2000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 0,691 -0.4204 -0.5782 -0.5782 -0.5781 -0.5916 -0.5916 -0.5916 -0.5104 -0.1067 -0.1067 -0.1067 -0.0702 -0.1028 -0.0702 -0.10891 -0.0703 | 0.4717 0.973 1.0726 1.0726 1.0726 1.0726 1.0726 1.0726 1.0726 1.0732 1.0169 0.7372 0.7372 0.7372 0.7372 0.7372 0.7372 0.8372 0.8372 0.8372 0.8472 0.8 | 0.9 0.0250 0.3760 0.1750 0.1750 0.1500 0.2003 0.3060 0.5000 0.5000 0.7003 0.700 | 0.6434 -0.4619 -0.6654 -0.6654 -0.6654 -0.5697 -0.5697 -0.5697 -0.1918 -0.917 -0.1936 -0.0643 | 0.4964 0.9607 1.0947 1.0947 1.0969 1.0965 1.0965 1.0941 1.0932 0.905 0.806 0.7490 0.7490 0.8764 0.87 | 0.0 0.0590 0.1790 0.1500 0.2790 0.0000 0.000 0.00000 0.0000 0.00000 0.0000 0.0000 0. | 0.7785 -0.7124 -0.7124 -0.571 -0.571 -0.572 -0.572 -0.572 -0.572 -0.573 -0.0542 -0.0573 -0.0543 -0.070 | ML 0.6179 1.1390 1.0457 1.0457 1.0458 1.0423 1.0423 1.0423 1.0423 0.8754 0.8754 0.8754 0.9783 0.8754 0.9783 0.8774 0.9784 0.8781 | 0.0 0.0 0.0 0.1 0.0 0.1 0.0 0.7000 0.7000 0.5000 0.5000 0.7000 0.7000 0.0 0.0 0.0 0.0 0.0 0. | 0.4774 -0.4774 -0.4027 -0.401 -0.401 -0.401 -0.4104 -0.4104 -0.4104 -0.102 -0.1 | 0.0740 1.030 1.030 1.030 1.030 1.030 1.030 1.030 1.030 0.040 0.040 0.040 0.070 0.0000 0.00 |

Table 3.6: Pressure data (M = 0.8 $\alpha = 0^{\circ}$)

| UPPER | | SECTION | NHS | | SECTION | v 1 | | SECTION | 1 2 | | SECTION | |
|-------|--------|----------------------------|----------------------------|---------|----------------------------|----------------------------|--------|----------|----------------------------|----------------------------|---------|-----------|
| | X/E | CP | ML | X/E | CP | ML | X/C | CP | ML | X/C | CP | 41 |
| | | | | | | | | | | | | |
| 1 | 0.0 | 0.7887 | 0.4164 | 0.0 | 0. 7075 | 0.4624 | 0.0 | 0.6565 | 0.4897 | 0.0 | 0.5018 | 0 |
| 2 | 0.0250 | -0.4648 | 1.0160 | 0.0250 | -0.7004 | 1.1333 | 0-0250 | -0.7073 | 1.1361 | 0.0250 | -0.7709 | 1.1757 |
| 3 | 0.0500 | -0.5019 | 1.0756 | 0.0500 | -0.7112 | 1.1000 | 0.0500 | -0.7576 | 1.1604 | 0.0500 | -0.0974 | 1.240* |
| • | 0.0:50 | -0.5327 | 1.0495 | 0.0750 | -0.6526 | 1.1087 | 0.0750 | -0.7590 | 1.1641 | 0.0750 | -0.9153 | 1.2501 |
| 5 | 0.1303 | -0.4739 | 1.0127 | 0.1000 | -0.5140 | 1.0687 | 0.1000 | -0.4823 | 1.1245 | 0.1000 | -0.8112 | 1.1015 |
| 6 | 0.1500 | -0.3931 | 0.9818 | 0.1500 | -0.4938 | 1.0276 | 0.1500 | -0.5933 | 1.0787 | 0.1500 | -0.7319 | 1.1627 |
| 1 | 0.2333 | -0.4373 | 1.0026 | 0.2000 | -0.5160 | 1.0410 | 0.2000 | -0.507 | 1.0574 | 0.2000 | -0.6ERT | 1.1116 |
| 6 | 0.3000 | -0.4402 | 1.0037 | 0.2000 | -0.5305 | 1.0477 | 0.3000 | -0.5594 | 1.0617 | 0.,000 | -0.6639 | 1.1738 |
| 9 | 0.4709 | -0.4563 | 1.0121 | 0.4000 | -0.5029 | 1.0340 | 0.4000 | -0. 443 | 1.0564 | 0.4000 | -0. 784 | 1.0"16 |
| 10 | 0.5000 | -0.4935 | 1.0299 | 0.5000 | -0.5135 | 1.0774 | 0.5000 | -0.5228 | 1.0437 | 0.5000 | -0.5188 | 1.0420 |
| 11 | 0.5000 | -6.3000 | 0.9853 | 0.6000 | -0.4055 | 0.9875 | 0.5000 | -0.4007 | 0.9852 | 0.6000 | -0.3750 | 6.0.13 |
| 12 | 0.1330 | -0.2762 | 0.7351 | 0.7000 | -0.2054 | 0.9205 | 0.1000 | -0.2538 | 0.9163 | 0.7000 | -0.2412 | 0.9104 |
| 13 | 0.0000 | -0.1546 | 0.8714 | 0.6000 | -0.1194 | 0.8549 | 0.8.20 | -0.00A5 | 0.8454 | 0. 2000 | -0.0881 | 0.0010 |
| 14 | 0.7300 | -0.0300 | 0.8150 | 0.9000 | 0.0017 | 0.8002 | 0.9000 | 0.0149 | 0.7941 | 0.9000 | 0.0201 | 0.7923 |
| 15 | 1.0000 | 0.0013 | 9.7545 | 1.0000 | 0.1278 | 0.1454 | 1.0000 | 0.1203 | 0.7479 | 1.0000 | 0.1287 | 0.7570 |
| FOMEN | | | | | | | | | | | | |
| 1 | 0.0 | 0.7887 | 0.4154 | 0.0 | 0.7075 | 0.4624 | 0.0 | 0.5565 | 0.4897 | 0.0 | 0.6018 | 0.5197 |
| 2 | 0.0500 | 0.2615 | 0.6819 | 0.0500 | 0.2202 | 9. 7011 | 0.0500 | 0.1934 | 0.7134 | 0.0500 | 0.1215 | 0. 7142 |
| 3 | 0.1000 | 0.2185 | 0.7018 | 0.1000 | 0.1713 | 0.1204 | 0.1000 | 0.1653 | 0.7762 | 0.1000 | 0.1320 | 0.7414 |
| • | 0.1500 | 0.1619 | 0.7277 | 0.1500 | 0.1224 | 0.7452 | 0.1500 | 0.1069 | 0.7527 | 0.1500 | 0.0779 | 0.7657 |
| 5 | 0.2000 | 0.1131 | 0.7478 | 0.2000 | 0.0771 | 0.7660 | 0.2000 | 0.0609 | 0.7733 | 0.2000 | 0.0271 | 0.7945 |
| • | 0.4000 | -0.0417 | 0.9223 | 0.4000 | -0.1027 | 0.8474 | 0.4000 | -0.1130 | 0.8520 | 0.4000 | -0.'191 | O. 8546 |
| 1 | 0.5000 | -0.0820 | 0.8341 | 0.5000 | -0.0744 | 0.8438 | 0. 000 | -0-0025 | 0.8426 | 0.5000 | -0.0MAT | 0.0403 |
| 8 | 0.6000 | -0.0232 | 0.8138 | 0.6000 | -0.0297 | 0.8144 | 0.6000 | -0.0105 | 0.8060 | 0.6000 | -0.0106 | 0.8758 |
| 9 | 0.8300 | 0.1027 | 0.7541 | 0.8000 | 0.1160 | 0.7484 | 0.9000 | 0.1350 | 0.7398 | 0.8000 | 0.1418 | 0.7357 |
| 10 | 0.9000 | 0.1253 | 0.7442 | 0-9000 | 0.1440 | 0.7357 | 0.9000 | 0.1591 | 0.7292 | 0. 9000 | 0.1487 | 0.7334 |
| 11 | 1.0000 | 0.0953 | 0.7585 | 1.0000 | 0.1228 | 0.7454 | 1.0000 | 0.1283 | 0.7429 | 1.0000 | 0.1282 | 0.7429 |
| | | | | | | | | | | | | |
| | | SILTION | | | Section | | | SECTION | | | SECTION | |
| HE | */(| Ch | MI | XIC | C.F. | *15 | * C | CF | 41 | X/C | CD | -1 |
| UPPER | SIDE | | | | | | | | | | | |
| | 0.9 | 0.5726 | 3.5337 | 0.0 | 0. 4296 | 0.6031 | J. 11 | 0.5965 | 0.5211 | 0.0 | 0.5008 | 0.5105 |
| 2 | 0.0250 | -0.8479 | 1.2128 | 0.0250 | -0.1142 | 1.1719 | 0.0500 | -1.1168 | 1.3719 | 0.0500 | -1.0369 | 1.1217 |
| 3 | 0.0500 | -1.0313 | 1.3189 | 0.0500 | -1.0812 | 1.3425 | 0.1000 | -1.IAAA | 1.4195 | 0.1340 | -1.1123 | 1 - 3433 |
| • | 0.0:50 | -1.0234 | 1.3135 | 0.0750 | -1.1282 | 1.3789 | 0.1500 | -1.0701 | 1.3433 | 0.1500 | -1.9754 | 1.2166 |
| 5 | 0.1000 | -9.9438 | 1.2665 | 0-1000 | -1-1064 | 1.3645 | 0.2333 | -1.0249 | 1.3178 | 0.2000 | -1.0364 | 1. 3228 |
| 6 | 0.1:00 | -0.9514 | 1.2138 | 0.1500 | -0.2781 | 1.2382 | 0.3000 | -0.5062 | 1.7455 | 0.3000 | -0.5817 | 1.0735 |
| 7 | 0.2000 | -0.7767 | 1.1735 | 0.2000 | -0.9205 | 1.7531 | 0.4000 | -0.4131 | 0.2010 | 0.4000 | -0. 234 | 0.949? |
| 8 | 0.7000 | -7.6952 | 1.1301 | 0.3000 | -0.7424 | 1.1505 | 0.5000 | -0.4047 | 0.9873 | 0. 000 | -0.3735 | 3.3431 |
| | 0.4300 | -0.5972 | 1.0915 | 0.4000 | -0.5374 | 1.0511 | 0.6000 | -0. 1177 | 0. 4461 | 0.6000 | -0.2504 | 0. 01 6 R |
| 10 | 0.5000 | -2.4925 | 1.0292 | 0.5000 | -0.4664 | 1.0163 | 0.7000 | -0.1958 | 0.9897 | 0.1300 | -0.1543 | 0.8.04 |
| 11 | 0.6000 | -0.3602 | 0.3660 | 0.6000 | -0.3425 | 0.9575 | 0.8000 | -0.06A5 | 0.8314 | 0.6000 | -0.0464 | 0.8377 |
| 12 | 0.7000 | -0.2174 | 0.8976 | 0.7000 | -0.2070 | 0. 1950 | 0.9000 | 0.0459 | 0.7404 | 0.9000 | 0.0013 | 0.6077 |
| 13 | 0.8000 | -0.0812 | 0.8377 | 0.8000 | -0.0715 | 0.8133 | 1.0010 | 0.1403 | 0. 1284 | 1.0202 | 0.0779 | 0.7444 |
| 14 | 0.9000 | 0.0260 | 0.7889 | 0. 9000 | 0.0339 | 0.7901 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 15 | 1.0000 | 0.1332 | 0.7407 | 1.0000 | 0.1194 | 0.1467 | 0-0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 |
| LOWER | | | | | | | | | | | | |
| 1 | 0.0 | 0.5726 | 0.5337 | 0.0 | 0.4296 | 0.6031 | 0.0 | 0.5955 | 0.5211 | 0.0 | 0.5000 | 0.5195 |
| 2 | 0.0500 | 0.2107 | 0.7056 | 0.0500 | 0.2265 | 0.6980 | 0.0500 | 0.1866 | 0.7165 | 0.0500 | 0.1201 | 0.7466 |
| 3 | 0.1000 | 0.1151 | 0.7473 | 0.1000 | 0.1274 | 0.7432 | 0.1000 | 0.1043 | 0.7535 | 0.1000 | 0.0340 | 0.7956 |
| • | 0.1500 | 0.0877 | 0.7617 | 0.1500 | 0.0723 | 0.7583 | 0.1500 | 0.0525 | 0.776A | 0.1500 | -0.0115 | 0. 8061 |
| 5 | 0.2000 | 0.0542 | 0.7767 | 0.2000 | 0.0291 | 0.7883 | 0.2000 | 0.007A | 0.7973 | 0.2000 | -0.0443 | 0.8700 |
| 6 | 0.4000 | -0.1008 | 0.8468 | 0.4000 | -0.1026 | 0.8472 | 0.4000 | -0.:128 | 0.8520 | 0.4000 | -0.1754 | 0.8933 |
| 7 | 0.5000 | -0.0730 | 0.8339 | 0.5000 | -0.0728 | 0.8339 | 0.5000 | -0.0765 | 0.8357 | 0.5000 | -0-1505 | 0. 6243 |
| | 0.6000 | 0.0046 | 0.7989 | 0.6000 | -0.0077 | 0.8941 | 0.6000 | -0.0299 | 0.8145 | 0.6000 | -0.0435 | 0.8239 |
| | | | | | | | | | | | | |
| 9 | 0.6000 | 0.1422 | 0.7365 | 0.8000 | 0.1407 | 0.7367 | 0.8000 | 0.1343 | 0.7383 | 0.4000 | 0.1177 | 0.7490 |
| | | 0.1422 0.1542 0.1332 | 0.7365 0.7312 0.7407 | 0.9000 | 0.1407 0.1607 0.1194 | 0.7367 0.7281 0.7469 | 0.9000 | 0.1484 | 0.7383 0.7337 0.7284 | 0.9000 0.9000 1.0000 | | 0.7490 |

Table 3.7: Pressure data (M = 0.8 $\alpha = 2^{\circ}$)

| | | SECTION | 1 115 | | SECTION | 1 | | SECTION | , | | SECTION | |
|--|---|---|--|--|--|--|--|---|--|--|--|--|
| NP | X/C | CP | ML | X/C | CP | MI | X/C | CF | ML | X/C | CP | - |
| UPPER | SIDE | | | | | | | | | | | |
| 1 | 0.0 | 0.6758 | 0.4792 | 0.0 | 0.5839 | 0.5274 | 0.0 | 0.4820 | 0.5780 | 0.0 | 0.4369 | 0.5007 |
| 2 | 0.0250 | -0.7803 | 1.1740 | 0.0250 | -0.9841 | 1.2891 | 0.0250 | -1.0263 | 1.3145 | 0.0250 | -1.0893 | 1.3532 |
| 3 | 0.0500 | -0.9303 | 1.2011 | 0.0500 | -1.0477 | 1.3276 | 0.0:00 | -1.0020 | 1.3552 | 0.0.00 | -1.74ch | 1.4572 |
| • | 0.0750 | -0.7613 | 1.1641 | 0.0750 | -0.9394 | 1.2674 | 0.0750 | -1.0678 | 1.3400 | 0.0750 | -1.7671 | 1.4500 |
| 5 | 0.1000 | -0.7136 | 1.1398 | 0.1000 | -0.9313 | 1.2577 | 0.1000 | -1.0407 | 1.3285 | 0.1000 | -1.1856 | 1.4157 |
| 6 | 0.1500 | -0.4769 | 1.0308 | 0.1500 | -0.5336 | 1.0483 | 0.1500 | -0.7227 | 1.1441 | 0.1500 | -1.1665 | 1.4020 |
| 7 | 0.2300 | -0.5207 | 1.0420 | 0.2000 | -0.6550 | 1.1092 | 0.5000 | -0.7120 | 1.1385 | 0.7000 | -0.0748 | 1.2500 |
| 8 | 0.3000 | -0.5363 | 1.0474 | 0.3000 | -0.6623 | 1.1129 | 0.3000 | -0.7191 | 1.1417 | 0.3000 | -3.9227 | 1.1759 |
| 9 | 0.4000 | -0.5646 | 1.0628 | 0.4000 | -0.6334 | 1.0992 | 0.4000 | -0.(R9) | 1.1261 | 0.4000 | -0.7614 | 1.1448 |
| 10 | 0.5000 | -0.6410 | 1.1015 | 0.5000 | -0.6878 | 1.1260 | 0.5000 | -0.6865 | 1.1250 | 0.5000 | -0.5496 | 1.0551 |
| 11 | 0.6000 | -0.4670 | 1.0153 | 0.6000 | -0.4357 | 1.0017 | 0.5000 | -0.4057 | 0.9857 | 0.6000 | -0.3530 | U- 041 4 |
| 12 | 0.7000 | - 5.3129 | 0.7431 | 0.7000 | -0.2844 | 0.9297 | 0.7000 | -0.2493 | 0.9137 | 0.7300 | -0.2227 | 0.9009 |
| 13 | 0.8000 | -0.1582 | 0.8722 | 0.8000 | -0.1212 | 0.8552 | 0.8000 | -0.0999 | 0.8453 | 0. 0000 | -0.0816 | 0.8370 |
| 14 | 0.3000 | -0.0372 | 0.8173 | 0.3000 | -0-0044 | 0.8025 | 0.0000 | 0.0101 | 0.7955 | 0.9000 | 0.0231 | 0.7874 |
| 15 | 1.0000 | 0.0839 | 0.7676 | 1.0000 | 0.1125 | 0.7475 | 1.0000 | 0.1207 | 0.7461 | 1.0000 | 0.1278 | 0.7476 |
| LOWER | SICE | | | | | | | | | | | |
| 1 | 0.0 | 0.6758 | 0.4792 | 0.0 | 0.5837 | 0.5774 | 0.0 | 0.4650 | 0.5780 | 0.0 | 0.4360 | 3.5007 |
| 2 | 0.0500 | 0.3875 | 0.6723 | 0.0500 | 0.3619 | 0.4352 | 0.0500 | 0.3366 | 0.4468 | 0.0500 | 0.3388 | 0.6458 |
| 3 | 0.1000 | 0.3252 | 0.5522 | 0.1000 | 0.2907 | 0.6684 | 0.1000 | 0.2785 | 0.6738 | 0.1000 | 0.255P | 0.4957 |
| 4 | 0.1500 | 0.2612 | 0.6819 | 0.1500 | 0.2268 | 0.6977 | 0-1500 | 0.2140 | 0.7035 | 0.1500 | 0.1880 | 0.71-1 |
| 5 | 0.2000 | 0.2091 | 0.7058 | 0.2000 | 0.1738 | 0.7218 | 0.5000 | 0.1589 | 0.7285 | 0.5000 | 0.1331 | 0.7492 |
| 6 | 0.4000 | 0.0277 | 0.7880 | 0.4000 | -0.0253 | 0.8119 | 0.4000 | -0.0329 | 0-R150 | 0.4000 | -0.0352 | 0.0161 |
| 7 | 0.5000 | -0.0154 | 0.9079 | 0.5000 | -0.0359 | 0.8165 | 0.5000 | -0.0317 | 0.P145 | 0.5000 | -0.0251 | 0.8120 |
| 9 | 0.6000 | 0.0248 | 0. 7893 | 0.6000 | 0.0302 | 0.7868 | 0.6000 | 0.0354 | 0.7845 | 0.6000 | 0.0335 | 0.7852 |
| | 0.8000 | 0.1278 | 0.7425 | 0.8000 | 0.1312 | 0.7412 | 0.6000 | 0.1462 | 0.7342 | 0.8000 | 0.1629 | 0.7266 |
| 10 | 0.9000 | 0-1382 | 0.7379 | 0.9900 | 0.1500 | 0.7324 | 0.9000 | 0.1650 | 0.7270 | 0.9000 | 0.1594 | 0.7279 |
| 11 | 1.0000 | 0.0639 | 0.7626 | 1.0000 | 0.1125 | 0.7495 | 1.0000 | 0.1202 | 0.7461 | 1.0000 | 0.1278 | 0.7426 |
| | | | | | | | | | | | | |
| | | SECTION | | | SECTION | 5 | | SECTION | 6 | | SECTION | 7 |
| NR | X/C | SECTION | HL HL | x/C | SECTION | 5 41 | */C | SECTION | 1 6 HL | x/C | SECTION | 7 41 |
| UPPER | 510F | CP | ML | | CP | M1. | */C | CP | ML | x/C | | |
| UPPER | \$10F | CP 0.3703 | ML 0.6311 | 0.0 | 0.0992 | 0.7554 | 0.0 | 0.4127 | ML 0.4111 | 0.0 | 0.4395 | 0.5983 |
| UPPER 1 2 | 510F 0.0 0.0250 | 0.3703 -1.1166 | ML 0.6311 1.3711 | 0.0 | 0.0792 -1.0613 | 0.7554 1.3356 | 0.0 | 0.4127 -1.3556 | ML 0.4111 1.5390 | 0.0 | 0.4395 -1.0305 | 0.5983 |
| UPPER | \$10F 0.0 0.0250 0.0500 | 0.3703 -1.1166 -1.3276 | 9.6311 1.3711 1.5194 | 0.0 0.0259 0.0500 | 0.0992 -1.0613 -1.3405 | 0.7554 1.3356 1.5282 | 0.0 0.0500 0.1000 | 0.4127 -1.3556 -1.2701 | ML 0.6111 1.5390 1.4893 | 0.0 0.0500 0.1000 | 0.4395 -1.0305 -0.0997 | 0.5943 1.3163 1.2971 |
| UPPER 1 2 3 | \$10f 0.0 0.0250 0.0500 0.0750 | 0.3703 -1.1168 -1.3276 -1.3555 | 9.6311 1.3711 1.5194 1.5433 | 0.0 0.0259 0.0500 0.0750 | 0.0792 -1.0613 -1.3405 -1.3935 | 0.7554 1.3356 1.5282 1.5627 | 0.0 0.0500 0.1000 0.1500 | 0.4127 -1.3556 -1.2501 -1.2642 | ML 0.6111 1.5390 1.4893 1.4714 | 0.0 0.0500 0.1000 0.1300 | .0.4395 -1.0305 -0.0907 -0.9282 | 0.5943 1.3167 1.7971 1.7559 |
| UPPER 1 2 3 4 5 | \$10F 0.0 0.0250 0.0500 0.0750 0.1000 | 0.3703 -1.1168 -1.3276 -1.3555 -1.2679 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 | 0.0 0.0259 0.0500 0.0750 0.1000 | 0.0992 -1.0613 -1.3405 -1.3935 -1.3892 | 0.7554 1.3356 1.5282 1.5627 1.5668 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 | ML 0.6111 1.5390 1.4893 1.4714 1.4590 | 0.0 0.0500 0.1000 0.1300 0.2300 | 0.4395 -1.0305 -0.997 -0.9282 -0.7804 | 0.5983 1.3163 1.7971 1.7550 1.1715 |
| 1 2 3 4 5 6 | \$10f 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 | 0.3703 -1.1168 -1.3276 -1.3555 -1.2479 -1.2499 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 | 0.0 0.0259 0.0500 0.0750 0.1000 0.1500 | 0.0992 -1.0613 -1.3405 -1.3935 -1.3892 -1.3679 | 0.7554 1.3356 1.5282 1.5627 1.5668 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.4127 -1.1556 -1.2701 -1.2642 -1.2474 -0.9127 | ML 0.4111 1.5390 1.4893 1.4714 1.4590 1.2470 | 0.0 0.0500 0.1000 0.1300 0.2300 0.3000 | .0.4395 -1.0305 -0.0037 -0.0282 -0.7804 -0.5365 | 0.5983 1.3163 1.7971 1.7550 1.1715 1.0995 |
| UPPER 1 2 3 4 5 6 7 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | 0.3703 -1.1168 -1.3276 -1.3655 -1.2479 -1.2499 -1.2234 | 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 1.4416 | 0.0 0.0259 0.0500 0.0750 0.1000 0.1500 0.2009 | 0.0992 -1.0613 -1.3405 -1.3893 -1.3892 -1.3473 -1.2649 | 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6809 | ML 0.8111 1.5390 1.4893 1.4714 1.4590 1.2470 1.1219 | 0.0 0.0500 0.1000 0.1300 0.2300 0.3000 0.4000 | 0.4395 -1.0305 -0.0307 -0.9282 -0.7804 -0.5365 -0.8322 | 0.5983 1.3167 1.7971 1.7550 1.1715 1.0995 |
| UPPER 1 2 3 4 5 6 7 8 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.1000 | 0.3703 -1.1168 -1.3276 -1.3479 -1.2479 -1.2234 -1.1102 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 1.4416 1.3661 | 0.0 0.0259 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 | 0.0992 -1.0613 -1.3405 -1.3893 -1.3892 -1.3473 -1.2649 -1.2354 | 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6809 | ML 0.6111 1.5390 1.4893 1.4714 1.4590 1.2470 1.1219 1.0546 | 0.0 0.0500 0.1000 0.1300 0.2000 0.2000 0.4000 | 0.4395 -1.0305 -0.0305 -0.9282 -0.7804 -0.5365 -0.6322 | 0.5983 1.3167 1.7971 1.7550 1.1755 1.0395 1.0478 |
| UPPER 1 2 3 4 5 6 7 8 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.1000 0.4000 | 0.3703 -1.1168 -1.3276 -1.3555 -1.2479 -1.2439 -1.2234 -1.1102 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 1.4416 1.3661 1.1744 | 0.0 0.0259 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | 0.0992 -1.0613 -1.3405 -1.3935 -1.3892 -1.3479 -1.2649 -1.2354 -0.7937 | 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 1.4505 1.1918 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6807 -0.5468 -0.4246 | ML 0.6111 1.5390 1.4893 1.4714 1.4590 1.2470 1.1219 1.0546 0.9955 | 0.0 0.0500 0.1000 0.1300 0.2300 0.3000 0.4000 0.5000 | CP .0.4395 -1.0305 -0.0307 -0.9282 -0.7804 -0.5365 -0.8322 -0.5363 | 0.5983 1.3167 1.7971 1.7559 1.1755 1.0995 1.0478 1.0005 0.9413 |
| UPPER 1 2 3 4 5 6 7 8 | \$10f 0.0 0.0250 0.0500 0.0750 0.1000 0.1000 0.2000 0.2000 0.4000 0.5000 | 0.3703 -1.1168 -1.3276 -1.3555 -1.2499 -1.2234 -1.1102 -0.7805 -0.3997 | ML 0.6311 1.3711 7.5194 1.5433 1.5355 1.4612 1.4416 1.3661 1.1744 0.9941 | 0.0 0.0259 0.0509 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.0992 -1.0613 -1.3405 -1.3495 -1.3473 -1.2649 -1.2549 -1.2737 -0.4126 | M1 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 1.4505 1.1418 0.9702 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 | 0.4127 -1.1556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6609 -0.4646 -0.3064 | ML 0.4111 1.5390 1.4893 1.4714 1.4590 1.2470 1.1219 1.0546 0.9955 0.9401 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | CP .0.4395 -1.0305 -0.0907 -0.9282 -0.7806 -0.5365 -0.8322 -0.5363 -0.3338 | 0.5983 1.3163 1.7550 1.7550 1.1755 1.0995 1.0995 1.0005 0.0013 |
| UPPER 1 2 3 4 5 6 7 8 9 | \$106 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.5000 0.5000 | 0.3703 -1.1168 -1.3276 -1.3459 -1.2499 -1.2234 -1.1102 -0.7805 -0.3997 -0.3176 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 1.4416 1.3661 1.1744 0.9941 0.9455 | 0.0 0.0259 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.6000 | 0.0992 -1.0613 -1.3405 -1.3835 -1.3873 -1.2649 -1.2354 -0.7937 -0.4126 -0.2980 | MI 0.7554 1.3356 1.5282 1.5627 1.5668 1.5340 1.4719 1.4505 1.1818 0.9702 0.7360 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.6000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6607 -0.5668 -0.4246 -0.3054 -0.3124 | ML 0.6111 1.5390 1.4893 1.4714 1.4590 1.2470 1.1219 1.0546 0.9955 0.9401 0.8966 | 0.0 0.0500 0.1000 0.1500 0.200 0.3000 0.4000 0.5000 0.6000 0.8000 | CP .0.4395 -1.0395 -0.0397 -0.0282 -0.7804 -0.5365 -0.5322 -0.1343 -0.3338 -0.2652 -0.1914 | 0.5983 1.3163 1.7971 1.7550 1.1755 1.0795 1.07478 1.0005 0.9013 0.9013 0.9013 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 | \$106 0.0 0.0250 0.0550 0.0750 0.1050 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 | 0.3703 -1.1166 -1.3276 -1.1455 -1.2499 -1.2234 -1.1102 -0.7805 -0.3997 -0.3176 | ML 0.6311 1.3711 3.5194 1.5433 1.5355 1.4612 1.4416 1.3661 1.1744 0.9455 0.4687 | 0.0 0.0259 0.0550 0.0750 0.1500 0.2500 0.3000 0.4000 0.5000 0.6000 | 0.0992 -1.0613 -1.3405 -1.3835 -1.3892 -1.3479 -1.2649 -1.254 -0.7937 -0.426 -0.2989 | M1 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 1.4705 1.1918 0.7360 0.7360 0.8747 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.8000 0.9000 | 0.4127 -1.1556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6607 -0.5668 -0.4246 -0.3054 -3.2124 | ML 0.6111 1.5390 1.4893 1.4714 1.4690 1.2470 1.1219 1.0546 0.9955 0.7401 0.8525 | 0.0 0.0500 0.1000 0.1500 0.2000 0.2000 0.4000 0.5000 0.6000 0.7000 0.87000 | 0.4305 -1.0305 -0.0937 -0.7804 -0.5365 -0.327 -0.3338 -0.2652 -0.1314 | 0.5983 1.3167 1.7071 1.7550 1.1755 1.0995 1.0478 1.0005 0.0513 0.0513 0.0513 0.0513 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | \$106 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 | 0.3703 -1.1168 -1.3276 -1.3555 -1.2499 -1.2249 -1.1102 -0.7805 -0.3176 -0.3176 -0.1743 -0.0742 | ML 0.6311 1.3711 3.5194 1.5433 1.5435 1.4612 1.4416 1.3661 1.1744 0.9941 0.9941 0.9450 0.8887 0.8887 | 0.0 0.0259 0.0550 0.0750 0.1550 0.1550 0.2000 0.4000 0.6000 0.7000 0.8000 | 0.0992 -1.0613 -1.3405 -1.3805 -1.3802 -1.3477 -1.2649 -1.2354 -0.7937 -0.4126 -0.2980 -0.2082 -0.1025 | M1 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 1.4505 1.1418 0.7702 0.7360 0.8747 0.8467 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.8000 0.9000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6607 -0.5468 -0.4246 -0.3064 -0.1149 -0.0173 | ML 0.6111 1.5390 1.4893 1.4714 1.4690 1.2470 1.1219 1.0546 0.9955 0.9401 0.8966 0.8965 0.8082 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.6000 0.6000 0.6000 0.7000 0.8700 0.9700 | 0.4305 -1.0305 -0.0307 -0.9282 -0.7804 -0.5365 -0.5365 -0.5365 -0.5652 -0.1314 -0.2652 | 0.5983 1.3163 1.7971 1.7550 1.1735 1.0995 1.0478 1.0005 0.0013 0.0012 0.8073 0.8075 0.8075 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | \$10£ 0.0250 0.0250 0.0500 0.0750 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 | 0.3703 -1.1166 -1.3276 -1.3479 -1.2499 -1.2234 -1.1102 -0.7805 -0.3176 -0.3176 -0.0742 -0.0302 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4616 1.3661 1.1744 0.9455 0.4887 0.9455 0.7869 | 0.0 0.0259 0.0550 0.0750 0.1500 0.2000 0.3000 0.4000 0.6009 0.7000 0.8000 | 0.0992 -1.0613 -1.3405 -1.3875 -1.3872 -1.3674 -1.2354 -0.7937 -0.4126 -0.2980 -0.2082 -0.1025 -0.0061 | 0.7554 1.3356 1.5282 1.5668 1.5340 1.4719 1.4505 1.1818 0.7369 0.8747 0.8667 0.8032 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.9000 1.0000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.5468 -0.3054 -0.3054 -0.1149 -0.0173 | ML 0.6111 1.5390 1.4893 1.4714 1.4590 1.7470 1.1219 1.0546 0.955 0.9401 0.8525 0.8082 0.0 | 0.0 0.0500 0.1000 0.1300 0.2200 0.3000 0.5000 0.5000 0.6000 0.7000 0.7000 | 0.4395 -1.0305 -0.0307 -0.0307 -0.7804 -0.5365 -0.3338 -0.3338 -0.2652 -0.1314 -0.576 | 0.5983 1.3167 1.7550 1.1755 1.0095 1.0095 1.0091 0.0013 0.0017 0.8073 0.8053 0.8053 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | \$106 0.0 0.0250 0.0500 0.0750 0.1000 0.1000 0.2000 0.3000 0.4000 0.6000 0.7000 0.8000 0.9000 1.0000 | 0.3703 -1.1168 -1.3276 -1.3555 -1.2499 -1.2249 -1.1102 -0.7805 -0.3176 -0.3176 -0.1743 -0.0742 | ML 0.6311 1.3711 3.5194 1.5433 1.5435 1.4612 1.4416 1.3661 1.1744 0.9941 0.9941 0.9450 0.8887 0.8887 | 0.0 0.0259 0.0550 0.0750 0.1550 0.1550 0.2000 0.4000 0.6000 0.7000 0.8000 | 0.0992 -1.0613 -1.3405 -1.3805 -1.3802 -1.3477 -1.2649 -1.2354 -0.7937 -0.4126 -0.2980 -0.2082 -0.1025 | M1 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 1.4505 1.1418 0.7702 0.7360 0.8747 0.8467 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.8000 0.9000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.6607 -0.5468 -0.4246 -0.3064 -0.1149 -0.0173 | ML 0.6111 1.5390 1.4893 1.4714 1.4690 1.2470 1.1219 1.0546 0.9955 0.9401 0.8966 0.8965 0.8082 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.6000 0.6000 0.6000 0.7000 0.8700 0.9700 | 0.4305 -1.0305 -0.0307 -0.9282 -0.7804 -0.5365 -0.5365 -0.5365 -0.5652 -0.1314 -0.2652 | 0.5983 1.3163 1.7971 1.7550 1.1735 1.0995 1.0478 1.0005 0.0013 0.0012 0.8073 0.8075 0.8075 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER | \$106 0.0250 0.0250 0.0500 0.0750 0.1000 0.1000 0.4000 0.4000 0.5000 0.7000 0.7000 0.8000 0.9000 1.0000 \$106 | 0.3703 -1.1168 -1.3276 -1.3459 -1.2499 -1.2249 -1.1102 -0.7805 -9.3997 -0.3176 -0.1743 -0.0302 0.1346 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 1.4612 1.4616 1.1744 0.9455 0.4855 0.4867 0.7869 0.7395 | 0.0 0.0259 0.0559 0.0750 0.1750 0.1500 0.2000 0.3000 0.4000 0.5000 0.6009 0.7000 0.8000 0.9000 | 0.0992 -1.0613 -1.3405 -1.3435 -1.3892 -1.3473 -1.2649 -1.254 -0.7937 -0.4126 -0.2982 -0.2082 -0.1025 -0.0061 0.0903 | 0.7554 1.3356 1.5282 1.5667 1.5360 1.4719 1.4505 1.1418 0.7369 0.8747 0.8467 0.8032 0.7576 | 0.0 0.2500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.9000 0.9000 0.0000 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2474 -0.9127 -0.5648 -0.4246 -0.3054 -0.1149 -0.0173 | ML 0.6111 1.5390 1.4893 1.4714 1.4590 1.217 1.0546 0.9555 0.9401 0.8955 0.8525 0.8082 0.000 | 0.0 0.0500 0.1000 0.1000 0.200 0.200 0.4000 0.5000 0.6000 0.7000 0.7000 0.900 1.0000 0.0 | 0.4305 -1.0305 -0.0307 -0.9282 -0.5855 -0.5855 -0.3338 -0.2852 -0.1314 -0.1245 -0.0575 0.0575 | 0.5983 1.3167 7.7971 1.7550 1.1755 1.0795 1.0478 1.0005 0.0017 0.8073 0.8073 0.8263 0.00 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER | \$10£ 0.0250 0.0250 0.0550 0.1050 0.1000 0.2000 0.4000 0.4000 0.5000 0.7000 0.7000 0.8000 0.9000 1.0000 \$10£ | 0.3703 -1.1166 -1.3276 -1.3555 -1.2499 -1.2249 -1.2102 -0.7805 -0.3797 -0.3176 -0.0742 -0.0742 -0.0302 -0.3306 -0.3703 | ML 0.6311 1.3711 1.5194 1.5433 1.5355 1.4612 1.4416 1.3661 1.1744 0.9941 0.455 0.4887 0.7869 0.7869 | 0.0 0.0259 0.0559 0.0750 0.1500 0.2509 0.3000 0.4000 0.6009 0.7000 0.87000 0.9000 1.0000 | 0.0992 -1.0013 -1.3405 -1.3935 -1.3935 -1.3679 -1.2649 -1.2554 -0.7937 -0.4126 -0.2980 -0.2082 -0.1025 -0.0061 0.0993 | 0.7554 1.3582 1.5627 1.5669 1.5340 1.4719 1.4505 1.1418 0.7360 0.7360 0.8747 0.8032 0.7556 | 0.0 0.0500 0.1500 0.1500 0.3000 0.4000 0.5000 0.5000 0.7000 0.8000 0.9000 1.0000 0.0 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2647 -0.9127 -0.6607 -0.46607 -0.3054 -0.3054 -0.1149 -0.1149 -0.1149 | ML 0.6111 1.5300 1.4893 1.4714 1.4490 1.2470 1.1219 1.0546 0.9955 0.9401 0.8525 0.86082 0.0 | 0.0 0.05 no 0.10 no 0.15 no 0.20 no 0.20 no 0.50 no 0.60 no 0.60 no 0.60 no 0.60 no 0.90 no 0.90 no 0.00 no 0. | 0.4305 -1.0305 -0.0307 -0.9282 -0.7804 -0.5365 -0.2652 -0.3338 -0.2652 -0.1314 -0.2652 -0.1014 -0.2652 | 0.5983 1.3163 1.7571 1.7570 1.1756 1.0757 1.0757 1.0757 0.0713 0.0713 0.0713 0.0713 0.0713 0.0713 0.0713 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER | \$10£ 0.0250 0.0250 0.0500 0.0750 0.1000 0.1000 0.3000 0.4000 0.5000 0.7000 0.7000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 0.8000 | 0.3703 -1.1168 -1.3276 -1.3276 -1.3455 -1.2499 -1.2499 -1.1102 -0.7805 -0.3176 -0.3176 -0.302 0.1346 0.3703 0.3601 | ML 0.6311 1.37194 1.5433 1.5355 1.4612 1.4612 1.4616 1.1744 0.9455 0.4887 0.7899 0.7899 0.7395 | 0.0 0.0259 0.0550 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.6009 0.7000 0.8000 0.9000 0.0000 | 0.0992 -1.0613 -1.3405 -1.3435 -1.3892 -1.477 -1.2649 -1.2354 -0.7937 -0.4126 -0.2980 -0.2082 -0.1025 -0.0061 0.0993 0.0997 0.3807 | 0.7554 1.3356 1.5282 1.5627 1.5669 1.3340 1.4719 1.4705 1.1818 0.7367 0.8737 0.8737 0.8737 0.8737 0.8737 | 0.0 0.0500 0.1500 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.9000 1.0000 0.0 | 0.4127 -1.3556 -1.2701 -1.2642 -1.247 -0.9127 -0.6609 -0.3056 -0.3056 -0.3056 -0.1159 -0.0173 -0.0173 | ML 0.6111 1.5390 1.4893 1.4714 1.4790 1.2470 1.12470 1.0546 0.9550 0.9451 0.8966 0.8525 0.8082 0.0 0.0 0.6111 0.6445 | 0.0 0.0500 0.1000 0.1500 0.2500 0.4000 0.5000 0.6000 0.7000 0.7000 0.0000 0.0000 | 0.4395 -1.0395 -0.997 -0.9282 -0.7804 -0.585 -0.4378 -0.338 -0.2652 -0.1314 -0.2652 -0.1314 -0.2652 -0.576 0.0 | 0.5943 1.3147 1.7550 1.7550 1.7550 1.7550 1.0295 2.047# 1.0295 0.0513 0.0512 0.0512 0.0520 0.0520 0.0520 0.0520 0.0520 0.0520 0.0520 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER | \$10f 0.0250 0.0250 0.0750 0.1050 0.1050 0.1050 0.2000 0.3000 0.4000 0.5000 0.8000 0.8000 0.9000 1.0000 \$16000 0.0000 0.1000 | 0.3703 -1.1164 -1.3276 -1.3276 -1.3459 -1.2499 -1.2234 -1.1102 -0.7805 -0.3176 -0.1743 -0.0742 0.0302 0.1346 | ML 0.6311 1.37194 1.5433 1.5433 1.5435 1.4612 1.3661 1.1744 0.7455 0.4887 0.8887 0.7869 0.7395 | 0.0 0.0259 0.0559 0.0750 0.1090 0.1590 0.2000 0.4090 0.6009 0.6009 0.7000 0.8900 0.7000 0.9000 1.0000 | 0.0992 -1.0613 -1.3405 -1.3405 -1.3405 -1.362 -1.3679 -1.2554 -0.7937 -0.4126 -0.2980 -0.2980 -0.2980 -0.3980 -0.3980 -0.3980 -0.3807 | 0.7554 1.3356 1.5282 1.5627 1.5669 1.5340 1.4719 1.4505 1.1416 0.9702 0.7360 0.8747 0.8032 0.7554 0.6261 0.6478 | 0.0 0.0500 0.1500 0.1500 0.2000 0.2000 0.400 | 0.4127 -1.3556 -1.2301 -1.2442 -0.9127 -0.6607 -0.5458 -0.3054 -0.1149 -0.0173 0.0 0.0 | ML 0.6111 1.5390 1.4793 1.4714 1.47470 1.2470 1.1219 1.0546 0.9955 0.8960 0.8960 0.8960 0.8960 0.00 0.6111 0.6445 0.6495 | 0.0 0.05 no 0.10 no 0.15 no 0.20 no 0.20 no 0.20 no 0.50 no 0.60 no 0.60 no 0.60 no 0.70 no 0.90 no 0.00 no 0. | 0.4305 -1.0105 -0.007 -0.9287 -0.7804 -0.5365 -0.5365 -0.1014 -0.1265 -0.1014 -0.756 -0.756 -0.776 -0.776 | 0.5943 1.3143 1.7550 1.1735 1.1735 1.0735 1. |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOMER 1 2 3 | \$10 f 0.0 250 0.0250 0.0550 0.0750 0.1000 0.1000 0.2000 0.2000 0.4000 0. | 0.3703 -1.116 -1.3276 -1.3276 -1.3279 -1.2499 -1.2499 -1.1102 -0.7805 -0.3176 -0.1743 -0.0742 0.0302 0.1346 0.3703 0.3601 0.2367 0.1986 | ML 0.6311 1.3711 3.5194 1.5413 1.5355 1.5355 1.4612 1.4612 1.4612 0.7942 0.7859 0.7859 0.6375 0.6353 0.6353 | 0.0 0.0259 0.0550 0.0750 0.1050 0.1550 0.3000 0.4000 0.4000 0.6000 0.8000 0.9000 0.0000 | 0.0792 -1.0613 -1.3405 -1.3405 -1.3405 -1.3473 -1.2654 -0.7937 -0.4126 -0.2980 -0.1025 -0.0061 0.9903 0.9903 0.3807 0.2482 0.1871 | M1 0.7554 1.3356 1.52627 1.5668 1.5340 1.4505 1.418 0.7020 0.7360 0.8767 0.8032 0.7576 0.7576 0.7576 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.5000 0.7000 0.9000 0.9000 0.0 0.0 0.0 0.0 0.0 0. | 0.4127 -1.15642 -1.2701 -1.2642 -1.2474 -0.9127 -0.6607 -0.5468 -0.2124 -0.1149 -0.0107 0.0 0.0 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 | ML 0.6111 1.5303 1.4803 1.4803 1.4870 1.2470 1.1240 0.905 0.9001 0.8562 0.0 0.6122 0.6445 0.6588 0.7588 | 0.0 0.0500 0.1500 0.2500 0.2500 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0. | 0.4305 -1.0305 -0.2037 -0.927 -0.5365 -0.3565 -0.3164 -0.3166 -0.2652 -0.1014 -0.2652 -0.0566 -0.0566 -0.2652 | 0.5943 1.3147 1.7550 1.7550 1.7550 1.7550 1.0755 1.0755 1.0755 1.0756 1.0756 1.0756 0.0757 0.0756 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 0.0757 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 UMER 1 | \$10F 0.0250 0.0250 0.0750 0.1000 0.1000 0.1000 0.4000 0.5000 0.7000 0.8000 0.9000 1.0000 510F 0.05500 0.1000 0.1500 0.1500 0.1500 | 0.3703 -1.1166 -1.3269 -1.3455 -1.3459 -1.2499 -1.2234 -1.110 -0.3997 -0.3176 -0.3797 0.3176 -0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 0.3176 | ML 0.6311 1.3714 1.5174 1.5175 1.4612 1.4416 1.3661 1.1744 0.4959 0.4887 0.7395 0.6311 0.6357 0.7104 | 0.0 0.0259 0.0550 0.0750 0.1500 0.1500 0.2000 0.4000 0.5000 0.700 | 0.0992 -1.0613 -1.3405 -1.3405 -1.3473 -1.7649 -1.254 -0.7937 -0.4126 -0.2980 -0.2980 -0.2980 -0.2980 -0.2980 -0.3980 | MI 0.7554 1.3356 1.5262 1.5627 1.5669 1.5340 1.4719 1.4705 1.1918 0.7002 0.7360 0.8747 0.8052 0.7596 0.7596 0.7596 | 0.0 0.2500 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.7000 0.9000 0.9000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 0.4127 -1.35642 -1.2701 -1.2642 -1.2642 -1.2648 -0.4669 -0.2054 -0.2154 -0.0173 0.0 0.0 0.2312 0.1637 0.1637 | NL 0.6111 1.5390 1.4793 1.4714 1.4590 1.2470 1.1210 0.955 0.900 0.8525 0.8082 0.0 0.0 0.6111 0.6958 0.7515 | 0.0 9.0500 0.1001 0.1300 0.2200 0.200 0.5000 0.5000 0.7000 0.900 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.00 | 0.4305 -1.0306 -0.9037 -0.9037 -0.7872 -0.1865 -0.9272 -0.1414 -0.3185 -0.2652 -0.1014 -0.7455 -0.0576 -0.0576 -0.00761 -0.00761 | 0.5943 1.3147 1.797 1.7950 1.1795 1.0795 0.9513 0.9513 0.9513 0.8263 0.0 0.8263 0.0 0.6730 0.6730 0.7511 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOMER 1 2 3 | \$10 f 0.3 0.0250 0.0550 0.0750 0.1050 0.1050 0.2000 0.3000 0.4000 0.4000 0.7000 0.8000 0.9000 | 0.9703 -1.1164 -1.3276 -1.3276 -1.3279 -1.2497 -1.2297 -1.2297 -1.2297 -0.1102 -0.3176 | ML 2.6311 1.3711 1.3719 1.5194 1.5413 1.5375 1.4616 1.3661 1.1744 2.9981 0.4575 0.4887 0.4850 0.7809 0.7305 | 0.0 0.0259 0.0509 0.0750 0.1500 0.2900 0.3000 0.4000 0.6000 0.8000 0.8000 0.8000 0.1500 0.8000 0.8000 0.8000 0.1500 0.2000 0.1500 | 0.0992 -1.0613 -1.3405 -1.3405 -1.3467 -1.3467 -1.2649 -1.2649 -1.2649 -0.7937 -0.4126 -0.7937 -0.061 -0.0903 -0.3807 | M1 0.7554 1.3356 1.5282 1.5628 1.5568 1.5340 1.4719 1.4505 1.1818 0.7902 0.7350 0.8347 0.8032 0.7554 0.6758 0.7450 0.7554 0.6778 | 0.0 0.2500 0.1500 0.2000 0.4000 0.5000 0.5000 0.7000 0.9000 1.0000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2644 -0.4669 -0.4666 -0.3054 -0.1149 -0.0173 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 -0.073 | NL 0.6111 1.5300 1.4803 1.4803 1.4704 1.4500 1.2470 1.0566 0.4956 0.8962 0.0 0.6112 0.6445 0.7268 0.7268 0.7268 | 0.0 0.05no 0.10no 0.15no 0.20no 0.20no 0.50no 0.50no 0.70no 0.70no 0.70no 0.70no 0.00no 0 | 0.30 -1.016 -0.007 -0.007 -0.727 -0.180 -0.516 -0.755 -0.114 -0.745 -0.057 -0.057 -0.007 -0.0 | 9L 0.5983 1.3167 1.7971 1.7550 1.7752 1.0095 7.0478 1.0095 0.0012 0.8753 0.0 0.8753 0.0 0.7512 0.7512 0.7512 0.7712 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 UMER 1 | \$10 f 0.3 0.0250 0.0550 0.0750 0.1050 0.1500 0.2000 0.3000 0.4000 0.5000 0.4000 0.4000 0.5000 0.5000 0.1500 0.05000 0.1500 | 0.3703 -1.3164 -1.3276 -1.3276 -1.3255 -1.3249 -1.2249 -1.2102 -0.7805 -0.397 -0.3176 -0.3174 -0.302 0.302 0.306 0.306 0.306 0.306 0.1528 -0.0200 -0.0132 | ML 0.6311 1.3714 1.5174 1.5175 1.4612 1.4416 1.3661 1.1744 0.4951 0.4857 0.4857 0.4857 0.6359 0.6359 0.6359 0.6371 0.7305 | 0.0 0.0259 0.0550 0.0750 0.1750 0.1300 0.3000 0.4000 0.5000 0.4000 0.1000 0.0000 0.1000 0.1500 0.1500 0.2000 0.4000 | 0.0992 -1.0613 -1.3405 -1.3405 -1.3405 -1.3405 -1.3407 -1.347 -1.347 -1.347 -0.7937 -0.7982 -0.7982 -0.7082 -0.1025 -0.0061 0.9903 0.9903 0.1671 0.1339 -0.1339 -0.0232 -0.0232 | M1 0.7554 1.3352 1.5627 1.5669 1.5340 1.4714 1.4705 0.7350 0.7350 0.7350 0.7470 0.8747 0.8057 0.7576 0.7576 0.7576 0.7596 | 0.0 0.7500 0.1500 0.1500 0.2000 0.4000 0.5000 0.7000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 | 0.4127 0.4127 1.3556 -1.72642 -1.2642 -1.2642 -0.9127 -0.5648 -0.3264 -0.1149 -0.0173 0.0 0.2312 0.1637 0.1034 -0.0525 -0.0525 | NL 0.611 1.5300 1.403 1.4714 1.4750 1.210 1.210 1.0546 0.0955 0.3056 0.000 0.6112 0.6456 0.7515 0.47515 0.4742 0.48181 | 0.0 9.000 0.1000 0.1300 0.2200 0.200 0.5000 0.5000 0.7000 0.900 0.0000 0.000 0.00000 0.00000 0. | 0.435 -0.031 -0.037 -0.072 -0.572 -0.576 -0.572 -0.371 -0.371 -0.725 -0.171 -0.725 -0.057 -0. | 9L 0.5983 1.3167 1.7971 1.7550 1.1715 1.0375 0.0317 0.0717 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 UMER 1 | \$10 f 0.0 0.0250 0.0550 0.0750 0.1050 0.1050 0.2000 0.2000 0.4000 0. | 0.9703 -1.1168 -1.3276 -1.3276 -1.3279 -1.2297 -1.2297 -1.2297 -1.2297 -0.1102 -0.3176 | ML 2.6311 1.3711 1.5194 1.5435 1.4616 1.3661 1.1744 2.9942 0.4552 0.4887 0.6353 0.6727 0.6353 0.67104 0.7315 0.8050 0.7809 | 0.0 0.0259 0.0550 0.0750 0.1000 0.1000 0.2000 0.4000 0.5000 0.5000 0.8000 0.8000 0.9000 0.0500 0.1500 0.250 | 0.0992 -1.0613 -1.3405 -1.3405 -1.3467 -1.3554 -0.7937 -0.4126 -0.7937 -0.0298 -0.2980 -0.2980 -0.3807 0.0362 | M1 0. 7554 1.3356 1.5282 1.5282 1.5568 1.5340 1.4719 0.7350 0.8784 0.7596 0.67596 0.7596 0.7596 0.7596 0.7596 0.7597 0.8080 | 0.0 0.1000 0.1000 0.1000 0.2000 0.2000 0.4000 0.5000 0.7000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.11000 0.1500 0.2000 0.40 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2642 -1.2646 -0.4646 -0.4646 -0.4646 -0.1246 -0.1149 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 | NL 0.611 1.5300 1.4803 1.4700 1.4700 1.2470 1.0546 0.4955 0.3956 0.8725 0.000 0.6445 0.6748 0.7745 0.8745 0.8788 0.7745 0.8788 0.7745 0.8788 | 0.0 0.1000 0.1000 0.2000 0.2000 0.4000 0.5000 0.6000 0.7000 0.0000 0.0000 0.0000 0.1000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0.304 -1.0165 -0.0017 -0.0282 -0.1865 -0.3265 -0.3161 -0.7265 -0.1164 -0.7265 -0.0576 -0.0576 -0.0576 -0.0576 -0.0076 -0.0076 -0.0076 -0.0076 -0.0076 | 9L 0.5983 1.3167 1.7971 1.7550 1.7755 1.0995 1.0095 0.0017 |
| UPPER 12 3 4 5 6 7 8 9 10 11 12 13 14 15 EQ 10 12 13 14 15 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19 | \$10 f 0.2 0.0250 0.0250 0.0750 0.1025 0.1500 0.2000 0.3000 0.4000 0.5000 0.4000 0.4000 0.5100 0.4000 | 0.3703 -1.3164 -1.3276 -1.3276 -1.3297 -1.2299 -1.2299 -1.234 -1.1102 -0.3176 -0.3176 -0.3176 -0.3176 -0.3176 -0.3500 | ML 0.6311 1.3711 7.5144 1.5413 1.5345 1.44616 1.3661 1.1764 0.9945 0.4887 0.7895 0.6351 0.6357 0.7375 0.6377 0.7104 0.8075 0.7878 | 0.0 0.0259 0.0590 0.0750 0.1090 0.1090 0.2090 0.409 | 0.0992 -1.0613 -1.365 -1.365 -1.365 -1.3692 -1.3673 -1.3649 -1.254 -0.7937 -0.4126 -0.7937 -0.7985 -0.7985 -0.1025 -0.1025 -0.1025 -0.1025 -0.1025 -0.1027 -0.1036 -0.1036 -0.1036 -0.1036 -0.1036 -0.1036 -0.1036 -0.1036 -0.1036 | 0.7554 1.3356 1.5227 1.5669 1.5727 1.5669 1.4719 1.4505 0.7360 0.7360 0.7360 0.7360 0.7360 0.7360 0.7360 0.7360 0.7360 0.7360 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 0.73760 | 0.0 0.7500 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.9000 0.9000 0.0 0.0 0.0 0.0 0.0 0. | 0.4127 -0.1356 -1.7364 -1.72642 -1.2474 -0.9127 -0.4602 -0.9127 -0.4602 -0.1149 -0.1149 -0.1149 -0.0100 -0.2312 -0.1149 -0.0525 -0.1054 -0.0525 -0.052 | NL 0.611 1.5300 1.403 1.474 1.4750 1.247 1.219 1.0546 0.6955 0.3056 0.6956 0.6956 0.000 0.6112 0.6456 0.7515 0.4742 0.4742 0.4742 0.4742 0.4742 | 0.0 9.0500 0.1000 0.1500 0.2700 0.2700 0.5000 0.5000 0.7000 0.900 0.0000 0.0 | 0.436 -0.007 -0.007 -0.078 -0.596 -0. | 9L 0.5983 1.3163 1.7971 1.7550 1.1716 1.0975 1.0975 0.0513 0.0513 0.0712 0.8553 0.0 0.6730 0.7711 0.8713 0.7711 0.8713 0.7711 0.8713 0.7711 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 UMER 1 | \$10 f 0.0 0.0250 0.0550 0.0750 0.1050 0.1050 0.2000 0.2000 0.4000 0. | 0.9703 -1.1168 -1.3276 -1.3276 -1.3279 -1.2297 -1.2297 -1.2297 -1.2297 -0.1102 -0.3176 | ML 2.6311 1.3711 1.5194 1.5435 1.4616 1.3661 1.1744 2.9942 0.4552 0.4887 0.6353 0.6727 0.6353 0.67104 0.7315 0.8050 0.7809 | 0.0 0.0259 0.0550 0.0750 0.1000 0.1000 0.2000 0.4000 0.5000 0.5000 0.8000 0.8000 0.9000 0.0500 0.1500 0.250 | 0.0992 -1.0613 -1.3405 -1.3405 -1.3467 -1.3554 -0.7937 -0.4126 -0.7937 -0.0298 -0.2980 -0.2980 -0.3807 0.0362 | M1 0. 7554 1.3356 1.5282 1.5282 1.5568 1.5340 1.4719 0.7350 0.8784 0.7596 0.67596 0.7596 0.7596 0.7596 0.7596 0.7597 0.8080 | 0.0 0.1000 0.1000 0.1000 0.2000 0.2000 0.4000 0.5000 0.7000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.11000 0.1500 0.2000 0.40 | 0.4127 -1.3556 -1.2701 -1.2642 -1.2642 -1.2646 -0.4646 -0.4646 -0.4646 -0.1246 -0.1149 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 -0.0173 | NL 0.611 1.5300 1.4803 1.4700 1.4700 1.2470 1.0546 0.4955 0.3956 0.8725 0.000 0.6445 0.6748 0.7745 0.8745 0.8788 0.7745 0.8788 0.7745 0.8788 | 0.0 0.1000 0.1000 0.2000 0.2000 0.4000 0.5000 0.6000 0.7000 0.0000 0.0000 0.0000 0.1000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0.304 -1.0165 -0.0017 -0.0282 -0.1865 -0.3265 -0.3161 -0.7265 -0.1164 -0.7265 -0.0576 -0.0576 -0.0576 -0.0576 -0.0076 -0.0076 -0.0076 -0.0076 -0.0076 | 9L 0.5983 1.3167 1.7971 1.7550 1.7755 1.0375 0.0712 0.0717 |

Table 3.8: Pressure data (M = 0.8 $\alpha = 4^{\circ}$)

| | | SECTION | 1 115 | | SECTION | | | ******* | | | | |
|---|---|--|--|--|---|---|---|--|---|---|---|--|
| NR | X/F | CP | ML | X/C | CP | ML | x/C | SECTION | ML | X/C | SECTION | |
| UPPER | SIDE | | | *** | | | */- | CP | | 1/1 | CP | MI. |
| 1 | 0.0 | 0.5166 | 0.5608 | 0.0 | 0.4374 | 0.5993 | 0.0 | 0.2992 | 0.6644 | 0.0 | 0.2677 | 0.6813 |
| 2 | 0.0250 | -1.0615 | 1.3359 | 0.0250 | -1.1883 | 1.4180 | 0.0250 | -1.2361 | 1.4519 | 0.0250 | -1.2032 | 1.4847 |
| 3 | 0.0500 | -1.0622 | 1.3362 | 0.0500 | -1.3223 | 1.5143 | 0.0500 | -1.2998 | 1.4979 | 0.0500 | -1.4343 | 1.6041 |
| 4 | 0.0750 | -1.0056 | 1.3016 | 0.0750 | -1.2140 | 1.4146 | 0.0750 | -1.2880 | 1.4488 | 0.0750 | -1.509 | 1.6607 |
| 5 | 0.1900 | -0.9768 | 1.2852 | 0.1000 | -1.2180 | 1.4387 | 0.1000 | -1.2672 | 1.4740 | 0.1000 | -1.4111 | 1,5941 |
| | 0.1:00 | -0.5717 | 1.0476 | 0.1500 | -0.7223 | 1.1442 | 0.1500 | -1.1125 | 1.3683 | 0.1500 | -1.3864 | 1.5419 |
| 7 | 0.2000 | -0.5360 | 1.0497 | 0.2000 | -0.7010 | 1.1328 | 0.2000 | -0.8620 | 1.2188 | 0.2000 | -1.376R | 1.5562 |
| 8 | 0.2000 | -0.6455 | 1.1043 | 0.3000 | -0.7504 | 1.1797 | 0.3000 | -0.8616 | 1.2186 | 0.3000 | -0.9347 | 1.2518 |
| 9 | 0.4000 | -0.6635 | 1.1135 | 0.4000 | -0.7392 | 1.1490 | 0.4000 | -0.8056 | 1.1879 | 0.4200 | -0.6712 | 1.1177 |
| 10 | 0.5000 | -0.74A3 | 1.1578 | 0.5000 | -0.7939 | 1.1770 | 0.5000 | -0.6454 | 1.1043 | 0. 1000 | -0.401 B | 1.0792 |
| 11 | 0.6000 | -0.4589 | 1.0123 | 0.6000 | -0.3920 | 0.5806 | 0.6000 | -0.3993 | 0.9798 | 0.6000 | -0.4245 | 0.0009 |
| 12 | 0.7222 | -0.3144 | 0.9440 | 0.7000 | -0.2081 | 0. 9316 | 0.7000 | -0.2761 | 0.9761 | 0.7300 | -0.2263 | 0.9356 |
| 13 | 0.8000 | -0.1778 | 0.9911 | 0.8303 | -0.1337 | 0.8534 | 0.9000 | -0.1204 | 0.8592 | 0. 9000 | -0.1544 | 0.8776 |
| 14 | 0.9000 | -0.0572 | 0.8274 | 0.9000 | -0.0303 | 0.8140 | 0.9000 | -0.0213 | 0.8100 | 0.9000 | -0.0377 | 0.8175 |
| 15 | 1.0000 | 0.0573 | 0.7739 | 1.0000 | 0.0790 | 0.7649 | 1.0000 | 0.0867 | 0.7613 | 1.0000 | 0.0701 | C. 7467 |
| LOWER | SIDE | | | | | | | | | | | |
| 1 | 2.0 | 0.5166 | 0.5608 | 0.0 | 0.4374 | 0.5993 | 0.0 | 0.2992 | 0.6644 | 0.0 | 0.2627 | 0.6913 |
| 2 | 0.0500 | 0.4773 | 0.5695 | 0.0500 | 0.4757 | 0.5808 | 0.0500 | 0.4478 | 0.5943 | 0.0500 | 0.4447 | 0. 5967 |
| 3 | 0.1000 | 0.4215 | 0.6072 | 0.1000 | 0.3827 | 0.6754 | 0.1000 | 0.3696 | 0.6316 | 0.1000 | 0.3446 | 0.5517 |
| 4 | 0.1500 | 0.3476 | 0.6419 | 0.1500 | 0.3127 | 0.6540 | 0.1500 | 0.3010 | 0.6637 | 0.1500 | 0.2737 | 0.6761 |
| 5 | 0.2000 | 0.2726 | 0.6673 | 0.2000 | 0.2533 | 0.6854 | 0.2000 | 0.2359 | 0.6934 | 0.2000 | 0.2110 | 0.7049 |
| 6 | 0.4000 | 0.0925 | 0.7587 | 0.4000 | 0.0383 | 0.7832 | 0.4000 | 0.0270 | 0.7885 | 0.4000 | 9.0220 | 9. 7997 |
| 7 | 0.5000 | 0.0360 | 0.7845 | 0.5000 | 0.0153 | 0.7937 | 0.5000 | 0.0118 | 0.7950 | 0.5000 | 0.0133 | 0.7966 |
| | 0.6000 | 0.0546 | 0.7715 | 0.6000 | 0.0637 | 0.7717 | 0.6000 | 0.0611 | 0.7729 | 0.6000 | 0.0673 | 0.7773 |
| 9 | 0.8000 | 0-1441 | 0.7352 | 0.8000 | 0.1449 | 0.7349 | 0.8000 | 0.1579 | 0.7290 | 0.8000 | 0.1652 | 0.7758 |
| 10 | 0.9000 | 0.1420 | 0.7360 | 0.9000 | 0.1519 | 0.7317 | 0.4500 | 0.1626 | 0.7269 | 0.9000 | 0.1475 | 0.7338 |
| 21 | 1.0000 | 0.0593 | 0.7738 | 1.0000 | 0.0790 | 0.7648 | 1.000 | 0.0867 | 0.7613 | 1.0000 | 0.0701 | 0.7667 |
| | | SECTION | | | SECTION | | | SECTION | | | | |
| | | | | | | | | | | | | |
| MG | *15 | | | VIE | | | *15 | | | *** | SECTION | |
| NR | 3/1 | CP | ML | X/E | Ch | MI | x/C | CP | ML | ×/C | CP | 41 |
| UPPER | SIDE | CP | ME | | Ch | 41 | | CP | ML | | CP | 41 |
| UPPER | SIDE C.O | CP 0.1554 | ML 0.7302 | 0.0 | -0.2037 | MI 0.8928 | 0.0 | CP 0.2592 | ML 0.6827 | 0.0 | CP 0.2844 | 0.6713 |
| UPPER 1 2 | SIDE 0.0 0.0250 | 0.1554 -1.3157 | ML 0.7302 1.5094 | 0.0 | -0.2037 -1.1232 | 0.8928 1.3745 | 0.0 | 0.2592 -0.9202 | ML 0.6827 1.1954 | 0.0 | 0.7844 -0.5706 | 0.6713 1.0558 |
| UPPER | SIDE 0.0 0.0250 0.0500 | 0.1554 -1.1157 -1.4861 | ML 0.7302 1.5094 1.6499 | 0.0 6.0250 0.0500 | -0.2037 -1.1242 -1.0543 | 0.8928 1.3745 1.3313 | 0.0 0.0500 0.1000 | 0.2597 -0.9202 -0.8016 | ML 0.6827 1.1954 1.1857 | 0.0 0.0500 0.1000 | 0.7844 -0.5706 -0.5550 | 0.6713 1.0558 1.0591 |
| UPPER 1 2 3 | SIDE 0.0 0.0250 0.0500 0.0750 | 0.1554 -1.1157 -1.4861 -1.4191 | ML 0.7302 1.5094 1.6499 1.5908 | 0.0 6.9250 0.0500 0.0750 | -0.2037 -1.1232 -1.0543 -1.0598 | 0.8928 1.3745 1.3213 1.3344 | 0.0 0.0500 0.1000 0.1500 | 0.2597 -0.9202 -0.8016 -0.7998 | ML 0.6827 1.1954 1.1857 1.1850 | 0.0 0.0500 0.1000 0.1500 | 0.2864 -0.5706 -0.5550 -0.5514 | ML 0.6713 1.0658 1.0591 1.0575 |
| UPPER 1 2 3 4 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4069 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 | 0.0 6.9250 0.0503 0.0750 0.1000 | -0.2037 -1.1233 -1.0543 -1.0598 -1.0653 | 0.8928 1.3745 1.3313 1.3344 1.3391 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.2592 -0.9202 -0.8016 -0.7998 -0.7602 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5272 | ML 0.6713 1.0658 1.0591 1.0575 1.0454 |
| UPPER 1 2 3 4 5 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4069 -1.3711 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 | 0.0 6.9250 0.9503 0.0750 0.1000 0.1500 | -0.2037 -1.1232 -1.0543 -1.0598 -1.0653 -0.9974 | 0.8928 1.3745 1.3313 1.3344 1.3391 1.2767 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.2592 -0.802 -0.8016 -0.7998 -0.7602 -0.6963 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5272 -0.4902 | 0.6713 1.0668 1.0591 1.0575 1.0454 1.0274 |
| 1 2 3 4 5 6 7 | SIDE 6.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 | 0.1554 -1.157 -1.4861 -1.4191 -1.4069 -1.3711 -1.2420 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 1.4542 | 0.0 0.9250 0.9503 0.0750 0.1000 0.1500 0.2000 | -0.2037 -1.1232 -1.0543 -1.0598 -1.0653 -0.9974 -0.9369 | 0.8928 1.3745 1.3313 1.3344 1.3391 1.2767 1.2616 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.2592 -0.8202 -0.8016 -0.7998 -0.7602 -0.6963 -0.6287 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5772 -0.4902 | ML 0.6713 1.0558 1.0591 1.0575 1.0454 1.0274 |
| UPPER 1 2 3 4 5 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 | 0.1554 -1.1157 -1.4861 -1.4191 -1.4069 -1.3711 -1.2420 -0.9895 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 1.4542 1.2924 | 0.0 6.9250 0.0503 0.0750 0.1000 0.1500 0.2000 0.3000 | -0.2037 -1.1242 -1.0543 -1.0598 -1.0653 -0.9974 -0.9369 -0.8425 | 0.8928 1.3745 1.3313 1.3344 1.3391 1.2767 1.2616 1.2086 | 0.0 0.0500 0.1000 0.2000 0.3000 0.4000 0.5000 | 0.2592 -0.9202 -0.8016 -0.7998 -0.7602 -0.6963 -0.6287 -0.5706 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0665 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.2844 -0.5706 -0.5516 -0.5514 -0.5772 -0.4907 -0.4658 -0.4375 | 0.6713 1.0658 1.0551 1.0575 1.0454 1.0274 1.0166 1.0222 |
| UPPER 1 2 3 4 5 6 7 | SIDE 6.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4069 -1.3711 -1.2420 -0.9895 -2.8587 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 1.4542 1.2924 1.2177 | 0.0 6.9250 0.0503 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | -0.2037 -1.1242 -1.0543 -1.0598 -1.0653 -0.9974 -0.96425 -0.7558 | 0.8928 1.3745 1.3213 1.3344 1.3391 1.2767 1.2616 1.2086 1.1615 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.2592 -0.9202 -0.8016 -0.7998 -0.7602 -0.6963 -0.6287 -0.5706 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0665 1.0363 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5272 -0.4402 -0.4658 -0.4475 -0.4103 | ML 0.6713 1.0658 1.0591 1.0575 1.0454 1.0274 1.0156 1.0222 0.0409 |
| UPPER 1 2 3 4 5 6 7 8 9 | SIDE 0.0 0.0250 0.0500 0.0750 0.1700 0.1500 0.2500 0.2000 0.4000 0.5000 | 0.1554 -1.1157 -1.4861 -1.4191 -1.4069 -1.3711 -1.2420 -0.9895 -0.7077 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 1.4542 1.2924 1.2177 1.1363 | 0.0 6.9250 9.0503 0.1000 0.1500 0.2000 0.3000 0.4000 | -0.2037 -1.1232 -1.0543 -1.0543 -1.0563 -0.7674 -0.0369 -0.8425 -0.7558 -0.6639 | MI 0.8928 1.3745 1.3313 1.3344 1.3391 1.2767 1.2616 1.1615 1.1134 | 0.0 0.0500 0.1600 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 0.2592 -0.8202 -0.8016 -0.7998 -0.7602 -0.6963 -0.5060 -0.5090 -0.5090 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0665 1.0363 1.0104 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5272 -0.4902 -0.4175 -0.4103 -0.3810 | ML 0.6713 1.0658 1.0575 1.0575 1.0454 1.0274 1.0156 1.0222 9.0409 9.0750 |
| UPPER 1 2 3 4 5 6 7 8 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4069 -1.3711 -1.2420 -0.9895 -2.8587 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 1.4542 1.2924 1.2177 1.1363 1.0582 | 0.0 0.0250 0.0502 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | -0.2037 -1.1242 -1.0543 -1.0593 -1.0653 -0.9369 -0.8425 -0.7558 -0.6639 -0.6713 | MI 0.8928 1.3745 1.3213 1.3344 1.3391 1.2967 1.2616 1.1615 1.1134 1.0669 | 0.0 0.0590 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.8000 | CP 0.2592 -0.202 -0.8016 -0.7998 -0.7602 -0.6963 -0.6287 -0.5706 -0.5090 -0.4554 -0.3994 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0465 1.0363 1.0104 0.9941 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 | 0.2844 -0.5704 -0.5550 -0.5514 -0.5772 -0.4402 -0.4458 -0.4175 -0.4103 -0.3498 | ML 0.6713 1.0658 1.0575 1.0575 1.0474 1.0156 1.0272 9.0409 0.4750 0.4750 |
| UPPER 1 2 3 4 5 6 7 8 9 | SIDE 0.0 0.0250 0.05500 0.0750 0.1700 0.1500 0.2000 0.3000 0.4000 0.5060 0.6000 | 0.1554 -1.1157 -1.4861 -1.4191 -1.409 -1.3711 -1.2420 -0.9895 -2.8589 -0.7077 -0.5537 | ML 0.7302 1.5094 1.6499 1.5908 1.5806 1.5522 1.4542 1.2924 1.2177 1.1363 | 0.0 6.9250 9.0503 0.1000 0.1500 0.2000 0.3000 0.4000 | -0.2037 -1.1242 -1.0543 -1.0593 -1.0593 -0.9974 -0.9369 -0.8425 -0.7558 -0.6639 -0.5713 -0.4890 | MI 0.8928 1.3745 1.3313 1.3344 1.2967 1.2616 1.1615 1.1134 1.0669 1.0766 | 0.0 0.0500 0.1600 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | CP 0.2592 -0.8202 -0.8016 -0.7998 -0.7602 -0.6963 -0.5287 -0.5706 -0.5090 -0.4554 -0.3994 -0.3112 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0665 1.0363 1.0104 0.9941 0.9661 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.8000 | 0.2 844 -0.5706 -0.5550 -0.5550 -0.5514 -0.4772 -0.4408 -0.4175 -0.4103 -0.3410 | ML 0.6713 1.0658 1.0658 1.0575 1.0454 1.0774 1.0156 1.0272 9.0499 0.4750 0.4666 |
| UPPER 1 2 3 4 5 6 7 6 7 8 9 10 11 | SIDE 0.0 0.0250 0.0500 0.0750 0.1700 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 | 0.1554 -1.3157 -1.4801 -1.4191 -1.4069 -1.3711 -1.2420 -0.9895 -0.8587 -0.7077 -0.5537 -0.4256 | ML 0.7302 1.5094 J.6499 1.5908 1.5806 1.5522 1.4542 1.2924 J.2177 1.1363 1.0582 0.9994 | 0.0 0.9250 0.9502 0.0750 0.1090 0.1500 0.2000 0.3000 0.4000 0.6000 0.7000 0.8000 | -0.2037 -1.1242 -1.0543 -1.0593 -1.0653 -0.9369 -0.8425 -0.7558 -0.6639 -0.6713 | MI 0.8928 1.3745 1.3213 1.3344 1.3391 1.2067 1.2616 1.1615 1.1134 1.0669 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 | CP 0.2592 -0.202 -0.8016 -0.7998 -0.7602 -0.6963 -0.6287 -0.5706 -0.5090 -0.4554 -0.3994 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0465 1.0363 1.0104 0.9941 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 | 0.2 844 -0.5706 -0.5550 -0.5510 -0.5772 -0.4902 -0.4458 -0.4103 -0.3810 -0.3898 -0.3109 -0.2771 | ML 0.6713 1.0658 1.0575 1.0575 1.0474 1.0156 1.0272 9.0409 0.4750 0.4750 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 | SIDE 0.0 0.0250 0.0550 0.1750 0.1750 0.1500 0.2500 0.3000 0.4000 0.5000 0.5000 0.7000 0.7000 0.7000 0.8000 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4069 -1.3711 -1.220 -0.9895 -2.8587 -0.7077 -0.5537 -0.4256 -0.3132 | ML 0.7302 1.5094 J.6499 1.5908 1.5906 1.5522 1.4542 1.2924 1.2177 1.1363 1.0502 0.9904 0.9438 | 0.0 6.0250 0.0550 0.1050 0.1500 0.2500 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 | -0.2037 -1.1242 -1.0543 -1.0593 -1.2653 -0.9574 -0.9369 -0.8425 -0.7558 -0.6639 -0.6713 -0.4890 -0.4024 -0.3263 | MI 0.8928 1.3745 1.3313 1.3394 1.2967 1.2086 1.1615 1.1134 1.0669 1.0266 0.9853 0.9498 | 0.0 0.9590 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0090 | CP 0.2597 -0.8202 -0.8016 -0.7998 -0.7602 -0.6963 -0.5706 -0.5090 -0.4554 -0.3994 -0.3230 0.0 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0553 1.0565 1.0363 1.0104 0.9841 0.9480 0.9480 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.5000 0.6000 0.7000 0.8000 0.9000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5272 -0.4408 -0.4775 -0.4103 -0.3498 -0.3109 -0.2721 | ML 0.6713 1.0658 1.0658 1.0575 1.0454 1.0274 1.0222 9.0459 0.9750 0.9666 0.9418 0.9244 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | SIDE 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4969 -1.3711 -1.2420 -0.9895 -0.8589 -0.7077 -0.5537 -0.4256 -0.3132 | ML 0.7302 1.5094 J.6499 1.5906 1.5522 1.4542 1.2177 1.1363 1.0582 0.9954 0.9438 0.8767 | 0.0 0.9250 0.9502 0.0750 0.1090 0.1500 0.2000 0.3000 0.4000 0.6000 0.7000 0.8000 | -0.2037 -1.1242 -1.0543 -1.0593 -1.2653 -0.2974 -0.8425 -0.7558 -0.6639 -0.6113 -0.4024 | MI 0.8928 1.3745 1.3213 1.3344 1.3391 1.2767 1.2616 1.2086 1.1615 1.1134 1.0659 1.0266 0.9853 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | CP 0.2592 -0.8202 -0.8016 -0.7998 -0.7602 -0.6963 -0.5706 -0.5706 -0.5900 -0.4554 -0.3994 -0.3612 -0.3230 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.0753 1.0665 1.0363 1.0104 0.9941 0.9661 0.9681 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.8000 | 0.2 844 -0.5706 -0.5550 -0.5510 -0.5772 -0.4902 -0.4458 -0.4103 -0.3810 -0.3898 -0.3109 -0.2771 | ML 0.6713 1.0658 1.0658 1.0575 1.0454 1.0274 1.0156 1.0222 1.0329 0.0750 0.0618 0.07418 0.0744 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | SIDE 0.0 0.0250 0.0550 0.0750 0.1750 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | 0.1554 -1.3157 -1.4861 -1.4191 -1.4969 -1.3711 -1.2420 -0.9895 -0.8589 -0.7077 -0.5537 -0.4256 -0.3132 | ML 0.7302 1.5094 J.6499 1.5906 1.5522 1.4542 1.2177 1.1363 1.0582 0.9954 0.9438 0.8767 | 0.0 6.0250 0.0550 0.1050 0.1500 0.2500 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 | -0.2037 -1.1242 -1.0543 -1.0593 -1.2653 -0.9574 -0.9369 -0.8425 -0.7558 -0.6639 -0.6713 -0.4890 -0.4024 -0.3263 | MI 0.8928 1.3745 1.3313 1.3394 1.2967 1.2086 1.1615 1.1134 1.0669 1.0266 0.9853 0.9498 | 0.0 0.9590 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0090 | CP 0.2597 -0.8202 -0.8016 -0.7998 -0.7602 -0.6963 -0.5706 -0.5090 -0.4554 -0.3994 -0.3230 0.0 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0553 1.0565 1.0363 1.0104 0.9841 0.9480 0.9480 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.5000 0.6000 0.7000 0.8000 0.9000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5272 -0.4408 -0.4775 -0.4103 -0.3498 -0.3109 -0.2721 | ML 0.6713 1.0658 1.0658 1.0575 1.0454 1.0274 1.0222 9.0459 0.9750 0.9666 0.9418 0.9244 |
| UPPER 1 2 3 4 5 6 7 6 7 8 9 10 11 12 13 14 15 LOWER 1 | SIDE C.0 .0250 0.0250 0.0750 0.1750 0.1090 0.2090 0.3000 0.4000 0.5090 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.7090 0.8000 0.8000 0.7090 0.8000 0.7090 0.700 0.700 0.700 0.7000 0.7000 0.7000 0.7000 0.7000 0.70 | 0.1554 -1.1157 -1.4801 -1.4191 -1.2420 -0.9895 -0.8583 -0.7077 -0.4256 -0.3132 -0.1617 -0.0223 | ML 0.7302 1.5094 1.6499 1.5908 1.5908 1.5922 1.4542 1.2177 1.1363 1.0582 0.9704 0.9438 0.8767 0.8105 | 0.0 6.0250 0.05502 0.0759 0.1000 0.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.9000 1.0000 | -0.2037 -1.1243 -1.0543 -1.0543 -1.0593 -0.9364 -0.9369 -0.8425 -0.7558 -0.639 -0.6439 -0.4890 -0.4024 -0.3263 -0.2502 | 0.8928 1.3745 1.3745 1.3313 1.3344 1.2767 1.2616 1.1615 1.1134 1.0266 0.9853 0.9498 0.9498 | 0.0 0.0500 0.1500 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.9000 1.0000 0.0 | 0.2592 -0.2592 -0.8016 -0.7998 -0.7602 -0.6563 -0.5287 -0.5706 -0.5090 -0.4554 -0.3994 -0.3230 0.0 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1304 1.0953 1.0065 1.0363 1.0104 0.9941 0.9461 0.9469 0.0 0.6827 0.6009 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.9000 1.0000 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5772 -0.4458 -0.4175 -0.4103 -0.3498 -0.3109 -0.2771 | ML 0.6713 1.0658 1.0575 1.0575 1.0454 1.0156 1.0156 1.0122 9.0406 0.4750 0.4750 0.4750 0.4750 0.4750 0.4750 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 | SIDE C.0 .0250 0.0250 0.0750 0.1750 0.1750 0.2200 0.3000 0.4000 0.5000 0.8000 0.8000 0.8000 0.9000 1.0000 0.0000 0.0000 0.0000 | 0-1554 0-1554 1-14191 1-14191 1-14969 1-13711 1-12420 -0-9895 -0-8587 -0-7077 -0-5537 -0-6553 | ML 0.7392 1.5074 1.6479 1.5908 1.5908 1.5926 1.4542 1.2177 1.1363 1.0582 0.9794 0.9794 0.8767 0.8105 | 0.0 6.0250 0.0550 0.1000 0.1000 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | -0.2037 -1.1242 -1.0543 -1.0553 -1.0653 -0.9974 -0.9369 -0.8425 -0.7558 -0.6639 -0.5713 -0.4024 -0.3263 -0.2502 | 0.8928 1.3745 1.3213 1.3344 1.2367 1.2086 1.1615 1.1134 1.0669 1.0766 0.9853 0.9498 0.9143 | 0.0 0.0500 0.1600 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | 0.2592 -0.8026 -0.806 -0.7998 -0.6663 -0.5706 -0.5706 -0.5909 -0.4554 -0.3230 -0.000 | ML 0.6827 1.1957 1.1850 1.1636 1.1304 1.0363 1.0104 0.3661 0.3661 0.9489 0.0 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.9000 1.0000 0.0 | 0.2844 -0.5706 -0.5550 -0.5514 -0.4772 -0.4402 -0.4458 -0.4103 -0.3410 -0.3408 -0.3109 -0.2771 0.0 | ML 0.6713 1.0561 1.0575 1.0575 1.0454 1.0274 1.0156 1.0222 9.0409 0.4750 0.4606 0.9418 0.924 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 | \$10E 0.0 0.0250 0.05250 0.05750 0.1500 0.2500 0.2500 0.400 | 0.1554 -1.1554 -1.4861 -1.4861 -1.491 -1.3711 -1.2420 -0.9895 -0.5537 -0.4256 -0.3132 -0.1617 -0.0223 -0.1554 0.4597 0.3306 0.2733 | ML 0.7302 1.5049 1.6499 1.5908 1.5522 1.4542 1.2177 1.1363 1.0582 0.9763 0.6767 0.7438 0.6767 0.7438 | 0.0 6.0250 0.0550 0.0750 0.1050 0.1500 0.2000 0.3000 0.4000 0.6000 0.7000 0.9000 1.0200 0.1500 | 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0 | 0.8928 1.3745 1.3745 1.3313 1.3344 1.2767 1.2616 1.1615 1.1134 1.0266 0.9853 0.9498 0.9498 | 0.0 0.0500 0.1700 0.1700 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.9000 0.0000 0.0000 0.0000 0.1500 | 0.2592 -0.2592 -0.8016 -0.7998 -0.7602 -0.6563 -0.5287 -0.5706 -0.5090 -0.4554 -0.3994 -0.3230 0.0 | ML 0.6827 1.1987 1.1887 1.1850 1.1630 1.1630 1.0655 1.0106 0.9441 0.9481 0.9481 0.9680 0.0600 0.06009 0.6827 0.6009 0.6999 | 0.0 0.0500 0.1500 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.9000 1.0000 0.0 | 0.2844 -0.5706 -0.5550 -0.5514 -0.5212 -0.402 -0.4103 -0.4103 -0.3109 -0.2721 0.0 | ML 0.6713 1.0505 1.0501 1.0575 1.0574 1.0156 1.0272 9.0409 0.4750 0.4066 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 | SIDE C-0 -0250 0-0250 0-0750 0-1750 0-1750 0-2000 0-3000 0-5000 0-6000 0-6000 0-8000 0-8000 0-8000 0-9000 SIDE 0-0500 0-1500 0-1500 | 0.1554 -1.1557 -1.4861 -1.4059 -1.4069 -1.3711 -1.2620 -0.9895 -0.8587 -0.6557 -0.4256 -0.3132 -0.1677 -0.0223 -0.1677 -0.0223 | ML 0.7302 1.5079 1.5099 1.5908 1.5908 1.5908 1.5908 1.5922 1.2924 1.2173 1.0592 0.4982 0.4982 0.6185 0.6185 0.6185 0.6195 0.6195 | 0.0 6.0250 0.0550 0.1000 0.1000 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | -0.2037 -1.12 (2 -1.0543 -1.05543 -1.05543 -1.05543 -0.9674 -0.9676 -0.8425 -0.7558 -0.6639 -0.6639 -0.4024 -0.3263 -0.2502 | 0.8928 1.3745 1.3745 1.3344 1.3344 1.2967 1.2086 1.1615 1.1134 1.0266 0.9458 0.9498 0.9143 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 0.0 | 0.2592 -0.8202 -0.8016 -0.7602 -0.6963 -0.5706 -0.5706 -0.5030 -0.4554 -0.3230 0.0 | ML 0.6827 1.1954 1.1857 1.1850 1.1636 1.1306 1.0363 1.0104 0.9481 0.9481 0.9480 0.000 0.000 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.7000 0.7000 0.7000 0.000 0.000 | 0.2844 -0.5706 -0.5540 -0.5514 -0.5712 -0.4408 -0.4775 -0.4103 -0.3498 -0.3498 -0.3109 -0.2771 0.0 | ML 0.6713 1.0650 1.0575 1.0575 1.0774 1.0774 1.0726 1.0272 9.0899 0.0760 0.4666 0.4418 0.9264 0.9 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 6 6 7 6 6 9 10 11 12 13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16 | \$10E 0.0 0.0250 0.0550 0.0550 0.1000 0.1500 0.2000 0.4000 0.4000 0.5000 0.6000 0.7000 0.8000 0.8000 0.9000 0.1000 0.1000 0.1000 0.1000 0.1000 0.1000 0.2000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 0.1554 -1.1157 -1.4861 -1.4019 -1.4069 -1.3711 -1.4262 -0.9858 -0.7077 -0.5537 -0.4256 -0.3132 -0.1677 -0.0223 0.15597 0.37306 0.2733 0.2191 | ML 0.7302 1.5094 1.6499 1.5908 1.5908 1.5922 1.2924 1.2177 1.1363 0.994 0.936 0.6767 0.7302 0.6769 0.6769 0.6769 0.7012 | 0.0 6.0250 0.0550 0.0750 0.1050 0.1500 0.2000 0.3000 0.4000 0.6000 0.7000 0.9000 1.0200 0.1500 | 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0 | MI 0.8928 1.3743 1.3913 1.3344 1.3391 1.2967 1.2086 1.1615 1.1034 1.0269 1.0269 1.0269 1.0269 0.9853 0.9498 0.5906 0.6487 | 0.0 0.0500 0.1700 0.1700 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.9000 0.0000 0.0000 0.0000 0.1500 | 0.2592 -0.8016 -0.7802 -0.8016 -0.7998 -0.5706 -0.5706 -0.5706 -0.5706 -0.3730 -0.3730 -0.00 -0.3730 - | ML 0.6827 1.1987 1.1887 1.1850 1.1630 1.1630 1.0655 1.0106 0.9441 0.9481 0.9481 0.9680 0.0600 0.06009 0.6827 0.6009 0.6999 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.7000 0.7000 0.0000 0.0000 0.1000 | 0.2864 -0.5766 -0.5550 -0.5550 -0.5514 -0.5775 -0.4103 -0.4075 -0.4103 -0.3498 -0.3109 -0.7771 -0.0 0.0 | ML 0.6713 1.0650 1.0575 1.0746 1.0774 1.0774 1.0762 0.4750 0.4750 0.4750 0.4750 0.4750 0.7350 0.7350 0.7374 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 | \$10E 0.0 0.0250 0.0750 0.0750 0.1750 0.1500 0.4000 0.4000 0.4000 0.4000 0.7000 0.7000 0.7000 0.1500 0.7000 0.1500 0.7000 0.1500 | 0.1554 -1.1157 -1.461 -1.4191 -1.4019 -1.3711 -1.4019 -1.3711 -1.2420 -0.3587 -0.5387 -0.5387 -0.5387 -0.5387 -0.539 -0.1554 0.6597 0.3106 0.2733 0.2191 0.2290 | ML 0.7302 1.5094 1.5099 1.5908 1.5906 1.5926 1.4542 1.2177 1.1363 1.0796 0.9796 0.9797 0.8105 0.7302 0.6767 0.7012 0.7816 | 0.0 6.2250 0.0552 0.1053 0.1500 0.2000 0.4000 0.5000 0.7000 0.9000 0.9000 0.1000 0.1503 0.1503 0.2000 0.4303 0.5000 | 0.00 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) | MI 0.8928 1.3745 1.3741 1.3544 1.3791 1.2907 1.2616 1.10649 1.10649 1.0264 0.9853 0.9453 0.9453 0.9453 0.9453 0.7074 0.7074 | 0.0 0.9590 0.1960 0.1960 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 0.9000 0.9000 0.9000 0. | CP 0.2592 -0.8026 -0.7998 -0.7602 -0.6963 -0.5706 -0.5706 -0.5706 -0.5706 -0.5920 -0.3706 -0.3930 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0. | ML 0.6827 1.1954 1.1857 1.1850 1.1530 1.1530 1.0164 0.9451 0.0363 1.0104 0.9480 0.0 0.0 0.0 0.6592 0.6592 0.6727 0.6109 0.7231 0.81103 0.81103 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 0.0000 0.00 | 0.7864 -0.5706 -0.5550 -0.5550 -0.5514 -0.4572 -0.4658 -0.4175 -0.4109 -0.3498 -0.7109 -0.771 0.0 0.2864 0.2651 0.1903 0.1903 0.1493 0.1493 | ML 0.6713 1.0661 1.0575 1.0464 1.0774 1.0176 1.0272 9.0499 0.4750 0.4766 0.976 0.0 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 6 | \$10E 0.0 0.0250 0.0550 0.0750 0.1750 0.1750 0.2300 0.4000 0.4000 0.5090 0.6000 0.7090 1.0000 \$10E 0.1000 0.0000 0. | 0.1554 -1.1157 -1.4861 -1.4019 -1.4069 -1.3711 -1.4262 -0.9858 -0.7077 -0.5537 -0.4256 -0.3132 -0.1677 -0.0223 0.1554 0.4597 0.3730 0.2733 0.2191 0.290 0.0192 | ML 0.7302 1.5094 1.5096 1.5908 1.5908 1.5522 1.2924 1.2177 1.1363 1.0582 0.9994 0.6358 0.6468 0.7302 0.6768 0.6767 0.7012 0.7977 | 0.0 (0.2750) (0.2750) (0.2750) (0.1500) (0.1500) (0.1500) (0.1500) (0.1500) (0.1500) (0.1500) (0.1500) (0.1500) (0.1500) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) (0.2000) | -0.2037 -1.1243 -1.0543 -1.0543 -1.0543 -1.0553 -0.9754 -0.9369 -0.4639 -0.5753 -0.4024 -0.3263 -0.2502 -0.37502 -0.37502 -0.2037 -0.2 | MI 0. 8 928 1. 3745 1. 3213 1. 3213 1. 3216 1. 2016 1. 2016 1. 1015 1. 1015 1. 1134 1. 2069 1. 0269 1. 0269 0. 9498 0. 9498 | 0.0 0.9500 0.1900 0.1900 0.2900 0.4900 0.5000 0.7000 0.7000 0.8000 0.9000 0.0000 0.0000 0.1500 0.1500 0.2900 0.4900 0.4900 0.4900 | 0.2492 -0.2022 -0.8016 -0.7908 -0.7602 -0.6963 -0.5036 -0.5036 -0.5036 -0.5036 -0.3936 -0.3330 -0.2330 -0.2542 -0.1103 -0.2103 -0.1103 -0.2103 -0.1103 -0.2103 | ML 0.6827 1.1946 1.1947 1.1857 1.1850 1.1436 1.1306 1.1306 1.0363 1.0104 0.7461 0.7461 0.7460 0.0441 0.7467 0.0609 0.06099 0.677 0.677 0.677 | 0.0 0.0500 0.1000 0.2000 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 0.0000 0.0000 0.0000 0.0000 0.0000 0.1500 0.2000 0.4000 0.4000 0.4000 | 0.784 -0.5706 -0.5750 -0.5550 -0.5550 -0.5752 -0.4002 -0.4675 -0.4175 -0.4109 -0.3498 -0.3109 -0.7271 -0.0 -0.7721 -0.0 -0.7721 -0.0 -0.7721 -0.0 -0.1445 -0.0877 | ML 0.6713 1.0558 1.0561 1.0575 1.0474 1.0776 1.0774 1.0776 1.0272 9.0499 0.4780 0.4676 0.4676 0.7471 0.6773 0.6776 0.7476 0. |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 6 9 | SIDE 0.0 0.0250 0.0750 0.0750 0.0750 0.1700 0.1500 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0.1554 -1.1157 -1.461 -1.4161 -1.4161 -1.4711 -1.4711 -1.2420 -0.2858 -0.7077 -0.4558 -0.537 -0.537 -0.537 -0.537 -0.715 -0.273 -0.1677 -0.0223 -0.1677 -0.0223 -0.1677 -0.0223 -0.0223 -0.0223 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.00000 -0.00 | ML 0.7302 1.5908 1.5806 1.5908 1.5908 1.5908 1.5908 1.5908 1.5908 1.5902 2.7917 1.1562 0.9958 0.8757 0.7917 0.7917 0.7917 0.7917 0.7917 0.7917 0.7917 1.7917 0.7917 | 0.0 6.2250 0.2550 0.1550 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.9000 0.1503 0.2000 0.450 | -0.2037 -1.1242 -1.0543 -1.05543 -1.05543 -0.49574 -0.49574 -0.49574 -0.49574 -0.49574 -0.49574 -0.49574 -0.49574 -0.49574 -0.49574 -0.2502 -0.2502 -0.2503 -0 | MI 0. 8928 1.3745 1.3741 1.3544 1.3391 1.2967 1.1615 1.165 1.1154 1.0649 1.0268 0.9853 0.9453 0.9453 0.9453 0.7074 0.7875 | 0.0 0.05900 0.1900 0.1900 0.2000 0.5000 0.5000 0.7000 0.8000 0.9000 0.9000 0.0 0.0 0.0 0.0 0.0 0. | CP 0.2592 -0.8016 -0.7998 -0.7602 -0.6963 -0.5787 -0.5708 -0.5020 -0.5020 -0.5540 -0.3930 0.000 0.2592 0.4342 0.1103 0.2726 0.1708 -0.0716 -0.0330 -0.0160 | ML 0-6R27 1-1974 1-1875 1-1636 1-1636 1-10363 1-07663 1-07661 0-7661 0-7661 0-7662 0-6827 0-6092 0-6727 0-6092 0-7271 0-8103 0-8155 0-8057 | 0.0 0.0500 0.1500 0.1500 0.2200 0.4000 0.5000 0.7000 0.7000 0.7000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | 0.7864 -0.5706 -0.5550 -0.5550 -0.5514 -0.4772 -0.4458 -0.4175 -0.4109 -0.3498 -0.1109 -0.7711 0.0 0.2864 0.2651 0.1903 0.1903 0.1493 0.1493 0.1488 -0.1488 -0.1488 -0.1488 | ML 0.6713 .0468 1.0501 1.0501 1.0575 1.0464 1.0276 1.0276 1.0276 0.0270 0.0478 0.0478 0.05713 0.6735 0.6735 0.8600 0.7660 0.7660 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 8 9 10 | \$10E 0.0 0.025U 0.0750 0.0750 0.1790 0.1590 0.2090 0.2090 0.4000 0.5090 0.5090 0.7090 1.0060 0.1090 0.1590 | 0.1554 -1.1157 -1.4861 -1.4161 -1.4161 -1.4161 -1.3711 -1.2420 -0.9895 -0.8995 -0.8975 -0.3737 -0.4256 -0.3132 -0.1617 -0.0223 0.1554 0.4733 0.2733 0.2191 0.2990 0.0192 0.0080 0.1402 | ML 0.7302 1.5094 1.6499 1.5908 1.5908 1.5908 1.5908 1.5908 1.5922 1.4542 1.2177 1.1363 1.0582 0.4994 0.7438 0.6764 0.7012 0.7816 0.7917 0.7937 | 0.0 6.2750 0.2750 0.1000 0.1500 0.2000 0.4000 0.4000 0.5000 0.7000 0.7000 0.9000 0.0500 0.1500 0.250 | CP -0.2037 -1.1242 -1.0543 -1.0543 -1.0593 -1.0593 -0.9714 -0.2169 -0.8425 -0.7593 -0.424 -0.2633 -0.2592 -0.2037 0.4766 0.3376 0.3263 -0.2592 -0.2037 0.4766 0.3376 0.3263 -0.2792 0.2053 | MI 0.8928 1.3745 1.3741 1.3754 1.3391 1.2907 1.2016 1.2086 1.1015 1.1134 1.0266 0.9493 0.7143 0.8928 0.704 0.7074 0.7074 0.7713 0.77562 | 0.0 0.0590 0.1900 0.2900 0.4900 0.5900 0.7000 0.7000 0.7000 0.9000 0.9000 0.0000 0.1500 0.1500 0.2900 0.4900 0.4900 0.4900 0.4900 0.4900 0.4900 0.4900 0.4900 0.4900 0.4900 | CP 0.799 -0.702 -0.8016 -0.7998 -0.7602 -0.6963 -0.5706 -0.5040 -0.5706 -0.5090 -0.4554 -0.3730 0.00 0.2592 0.4103 0.2126 0.11708 -0.00173 | ML 0.6 R72 1.1870 1.1870 1.1850 1.1850 1.1850 1.1850 1.190 1.0065 1.0106 0.9461 0.9461 0.9460 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | 0.0 0.0500 0.1000 0.2000 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 0.0000 0.0000 0.1000 0.1000 0.4000 0.4000 0.4000 0.6000 0.6000 | 0.7844 -0.5704 -0.5704 -0.5712 -0.4902 -0.4458 -0.4375 -0.4375 -0.4375 -0.3109 -0.7721 0.0 0.2846 -0.3109 -0.2721 0.0 0.2846 -0.1403 0.2846 -0.1403 -0.0103 -0 | ML 0.6713 1.0459 1.0575 1.0454 1.0775 1.0454 1.0775 1.0766 1.0272 9.0899 0.4750 0.4750 0.2666 0.7513 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 0.6713 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOWER 1 2 3 4 5 6 7 6 9 | SIDE 0.0 0.0250 0.0750 0.0750 0.0750 0.1700 0.1500 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 0.1554 -1.1157 -1.461 -1.4161 -1.4161 -1.4711 -1.4711 -1.2420 -0.2858 -0.7077 -0.4558 -0.537 -0.537 -0.537 -0.537 -0.715 -0.273 -0.1677 -0.0223 -0.1677 -0.0223 -0.1677 -0.0223 -0.0223 -0.0223 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.00000 -0.00 | ML 0.7302 1.5908 1.5806 1.5908 1.5908 1.5908 1.5908 1.5908 1.5908 1.5902 2.7917 1.1562 0.9958 0.8757 0.7917 0.7917 0.7917 0.7917 0.7917 0.7917 0.7917 1.7917 0.7917 | 0.0 6.2250 0.2550 0.1550 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.9000 0.1503 0.2000 0.450 | -0.2037 -1.1242 -1.0543 -1.0543 -1.0553 -0.4954 -0.9546 -0.9546 -0.9546 -0.9546 -0.513 -0.6039 -0.513 -0.6024 -0.2502 -0.2502 -0.2503 | MI 0. 8928 1.3745 1.3741 1.3544 1.3391 1.2967 1.1615 1.165 1.1154 1.0649 1.0268 0.9853 0.9453 0.9453 0.9453 0.7074 0.7875 | 0.0 0.05900 0.1900 0.1900 0.2000 0.5000 0.5000 0.7000 0.8000 0.9000 0.9000 0.0 0.0 0.0 0.0 0.0 0. | CP 0.2592 -0.8016 -0.7998 -0.7602 -0.6963 -0.5787 -0.5708 -0.5020 -0.5020 -0.5540 -0.3930 0.000 0.2592 0.4342 0.1103 0.2726 0.1708 -0.0716 -0.0330 -0.0160 | ML 0-6R27 1-1974 1-1875 1-1636 1-1636 1-10363 1-07663 1-07661 0-7661 0-7661 0-7662 0-6827 0-6092 0-6727 0-6092 0-7271 0-8103 0-8155 0-8057 | 0.0 0.0500 0.1500 0.1500 0.2200 0.4000 0.5000 0.7000 0.7000 0.7000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | 0.7864 -0.5706 -0.5550 -0.5550 -0.5514 -0.4772 -0.4458 -0.4175 -0.4109 -0.3498 -0.1109 -0.7711 0.0 0.2864 0.2651 0.1903 0.1903 0.1493 0.1493 0.1488 -0.1488 -0.1488 -0.1488 | ML 0.6713 .0468 1.0501 1.0501 1.0575 1.0464 1.0276 1.0276 1.0276 0.0270 0.0478 0.0478 0.05713 0.6735 0.6735 0.8600 0.7660 0.7660 |

Table 3.9: Pressure data (M = 0.8 $\alpha = 6^{\circ}$)

| | | SECTION | 211 | | SECTION | . 1 | | SECTION | | | SECTION | |
|--|---|---|--|--|---|--|---|---|--|---|--|--|
| NR | X/C | CP | ML | X/C | Cr | ML | X/C | CP | 41 | X/C | CP | 41 |
| UPPER | SIDE | | | | | | | | | .,,,, | | |
| 1 | 0.0 | 0.3444 | 0.5433 | 0.0 | 0.2865 | 0.6701 | 0.0 | 0.1300 | 0.7416 | 0.0 | 0.1093 | 0.7508 |
| 2 | 0.0250 | -1.2681 | 1.4738 | 0.0250 | -1.3606 | 1.5439 | 0.0250 | -1.4009 | 1.5763 | 0.0250 | -1.3724 | .1. 4530 |
| 3 | 0.0500 | -1.2592 | 1.4743 | 0.0500 | -1.503? | 1.6650 | 0.0500 | -1.4157 | 1.5891 | 0.0500 | -1.7773 | 1.4973 |
| 4 | 0.0750 | -1.2665 | 1.4717 | 0.0750 | -1.3934 | 1.5702 | 0.0750 | -1-4130 | 1.5857 | 0.0750 | -1.7444 | 1.475R |
| 5 | 0.1000 | -1.1299 | 1.3795 | 0.1000 | -1.3739 | 1.5540 | 0.1000 | -1.4037 | 1.5780 | 0.1000 | -1.2516 | 1.4517 |
| 6 | 0.1500 | -0.7624 | 1.1648 | 0.1500 | -1.1360 | 1.3949 | 0.1500 | -1.3891 | 1.5656 | 0.1500 | -1.1669 | : . 4.)30 |
| 7 | 0.2003 | -0.6447 | 1.1042 | 0.2000 | -0.9546 | 1.2150 | 0.2000 | -1 - 2324 | 1.4495 | 0.7300 | -1.1170 | 1.7676 |
| | 0. 1909 | -0.1272 | 1 -1454 | 0.3000 | -0.8455 | 1.2077 | 0.3000 | -0.6479 | 1.7094 | 0. 2000 | -0.gnng | 1. 2020 |
| 9 | 0.4000 | -0.6900 | 1.1274 | 0.4000 | -0.6566 | 1.1102 | 0.4000 | -0.7017 | 1.1376 | 0.4000 | -0.8574 | 1.7163 |
| 10 | 0.5000 | -0.5809 | 1.0721 | 0.5000 | -0.6646 | 1.1141 | 0.5000 | -0.7001 | 1.1321 | 0.5000 | -0.7456 | 1.1544 |
| 11 | 0.6700 | -9.5520 | 1.0590 | 0.6000 | -0.5457 | 1.0542 | 0.5000 | -0.5449 | 1.0551 | 0.6300 | -0.4471 | 1.1076 |
| 12 | 0.7000 | -0.4238 | 0.9957 | 0.7000 | -0.3934 | 0.9007 | 0.7000 | -0.4161 | 0.9314 | 0.7000 | -0 | 1.3638 |
| 13 | 0.8000 | -9-2704 | 0.9234 | 0.8000 | -0.2264 | 0.9331 | 0.8000 | -0.2513 | 0.9153 | 0.000 | -0.42=2 | 0.0344 |
| 1+ | 0.9000 | -0,1357 | 0.9521 | 0.0000 | -0.1084 | 0.8494 | 0.9000 | -0.1230 | 0.8560 | 0. 9000 | -0.7076 | 0.0167 |
| 15 | 1.0000 | -0.0010 | 0. 00)8 | 1.0000 | 0.0090 | 0.7960 | 1.0000 | 0.0072 | 0.7972 | 1.0000 | -0.1671 | 6. 4.30 |
| LOWER | SIDE | | | | | | | | | | | |
| 1 | 0.0 | 0.3444 | 0.6433 | 0.0 | 0.2865 | 0.6701 | 0.0 | 0.1300 | 0.7416 | 0.0 | 0.1003 | 0.7508 |
| 2 | 0.0500 | 0.5965 | 0.5208 | 0.0500 | 0.5693 | 0.5746 | 0.0500 | 0. 427 | 0.5481 | 0.0500 | 0.5252 | 0.5556 |
| 3 | 0.1503 | 0.5046 | 0.5671 | 0-1000 | 0.4657 | 0.5857 | 0.1000 | 0.4493 | 0.5936 | 0.1000 | 0.4168 | 0.5901 |
| 5 | 0.2000 | 0.4282 | 0.6039 | 0.1500 | 0. 3497 | 0.5225 | 0.1500 | 0. 2741 | 0.6295 | 0.1500 | 0.1141 | 0.644 |
| 6 | 0.4000 | 0.1461 | 0.7346 | 0.2000 | 0.3205 | 0.6547 | | 0.3074 | | 0.2000 | 0.2701 | |
| 7 | 0.5000 | 0.0904 | 0.7642 | 0.4000 | 0.0903 | 0.7596 | 0.4000 | 0.0746 | 0.7665 | 0.4000 | 0.0600 | 0.7770 |
| 8 | 0.6000 | 0.0963 | 0.7569 | 0.6000 | 0. 0908 | 0.7595 | 0.5000 | 0.0843 | 0.7621 | 0.6000 | 0.0740 | 0.7477 |
| 9 | 0.0000 | 0.1496 | 0.7330 | 0.8000 | 0.1438 | 0.7358 | 0.8000 | 0-1474 | 0.7340 | 0.8000 | 0.1400 | 0.7372 |
| 10 | 0.9000 | 0.1265 | 0.7430 | 0. 9000 | 0.1312 | 0.7416 | 0.9000 | 0.1308 | 0.7418 | 0.9000 | 0.0944 | 0.7625 |
| ii | 1.0000 | -0.0010 | 0.8008 | 1.0000 | 0.0099 | 0.7960 | 1.0000 | 0.0072 | 0.7972 | 1.0000 | -0.1671 | 0.0739 |
| | | | 0.0000 | | 3.0017 | 0.1100 | | 0.00.1 | | 1.0000 | | |
| | | | | | | | | | | | | |
| | | SECTION | 4 | | SECTION | | | SECTION | 6 | | SECTION | |
| NR | */5 | SECTION | | */5 | SECTION | | */5 | SECTION | 6 | X/C | SECTION | * |
| NR UPPER | X/C SIDE | SECTION | ML. | x/C | SECTION | 5 H(| ×/C | | | */C | SECTION | |
| | | | | x/C | | | x/C | | | */C | | 0.7756 |
| UPPER | SIDE | CP | ML | | CP | ML | | Co | ML. | | CP | વ |
| UPPER | 51DE 0.0 0.0250 0.0500 | -0.0474 -1.0465 -0.9905 | ML 0.8221 | 0.0 | -0.4630 | 1.0138 | 0.0 | 0.1393 -0.5913 -0.5796 | 0.7373 | 0.0 | 0.1459 -0.4499 | 0.7756 |
| UPPER 1 2 | 51DE 0.0 0.0250 | -0.0474 -1.0485 | ML 0.8221 1.3277 | 0.0 | -0.4630 -0.8357 | ML 1.0138 1.2040 | 0.0 | 0.1393 -0.5913 | ML 0.7373 1.0766 | 0.0 0.0500 0.1000 0.1500 | 0.1659 -0.4689 | 0.7756 |
| UPPER 1 2 3 | 51DE 0.0 0.0250 0.0500 | -0.0474 -1.0465 -0.9905 | 0.8221 1.3277 1.2933 | 0.0 0.0250 0.0500 | -0.4630 -0.4357 -0.4122 -0.4050 -0.7953 | 1.0138 1.2040 1.1315 | 0.0 0.0500 0.1000 | 0.1393 -0.5913 -0.5796 | 0.7373 1.0766 1.0710 | 0.0 | 0.1459 -0.4499 | 0.7756 |
| UPPER 1 2 3 4 5 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | -0.0474 -1.0465 -0.9705 -0.9752 -1.0004 -0.9776 | ML 0.8221 1.3277 1.2933 1.2955 1.2989 1.2853 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | -0.4630 -0.8357 -0.8122 -0.8050 -0.7953 -0.7708 | 1.0138 1.2040 1.1915 1.1876 1.1826 1.1698 | 0.0 0.2500 0.1000 0.1500 0.2000 0.3000 | 0.1393 -0.5913 -0.5796 -0.5746 -0.5676 -0.5585 | 0.7373 1.0766 1.0710 1.0693 1.0655 1.0655 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.1659 -0.4689 -0.4498 -0.4158 -0.4761 -0.4159 | 0.7756 1.0773 1.0071 1.0015 0.7970 0.9970 |
| UPPER 1 2 3 4 5 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 | -0.0474 -1.0485 -0.9705 -0.9752 -1.0004 | ML 0.8221 1.3277 1.2933 1.2955 1.2989 1.2853 1.2673 | 0.0 0.0250 0.0500 0.0750 0.1000 | -0.4630 -0.4357 -0.4122 -0.4050 -0.7953 | 1.0138 1.2040 1.1915 1.1876 1.1826 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.1393 -0.5913 -0.5796 -0.5746 -0.5676 -0.5676 | 0.7373 1.0766 1.0710 1.0683 1.0655 1.0655 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 | 0.1450 -0.4491 -0.4158 -0.4761 -0.4159 -0.4017 | 0.7756 1.0773 1.0074 1.0014 0.7970 0.0070 |
| UPPER 1 2 3 4 5 6 7 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | -0.0474 -1.0485 -0.9705 -0.9705 -1.0004 -0.9776 -0.9468 -0.8704 | ML 0.8221 1.3277 1.2933 1.2955 1.2989 1.2853 1.2673 1.2235 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | -0.4630 -0.8357 -0.8152 -0.8050 -0.7953 -0.7708 -0.7609 -0.7202 | 1.0138 1.2040 1.1915 1.1876 1.1826 1.1698 | 0.0 0.2500 0.1000 0.1500 0.2000 0.4000 0.5000 | 0.1393 -0.5913 -0.5796 -0.5766 -0.5676 -0.5676 -0.5369 -0.5165 | ML 0.7373 1.0766 1.0710 1.0693 1.0655 1.0699 1.0399 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 | 0.1659 -0.6499 -0.6498 -0.6758 -0.6761 -0.6159 -0.6077 -0.6048 | 0.7756 1.0173 1.0015 0.7970 0.9970 0.9970 |
| UPPER 1 2 3 4 5 6 7 8 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | -0.0474 -1.0485 -0.9935 -3.9952 -1.0304 -0.9776 -0.9468 -0.9734 -0.8311 | ML 0.8221 1.3277 1.2933 1.2955 1.2969 1.2673 1.2673 1.2275 1.1863 | 0.0 9.0250 9.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | -0.4630 -0.4630 -0.8357 -0.8122 -0.8050 -0.7953 -0.7708 -0.7609 -0.7202 -0.6721 | ML 1.0138 1.2040 1.1915 1.1876 1.1876 1.1698 1.1698 1.1639 1.1425 1.1179 | 0.0 0.2570 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.1393 -0.5913 -0.5796 -0.5746 -0.5676 -0.5369 -0.5165 -0.4915 | ML 0.7373 1.0766 1.0710 1.0693 1.0655 1.0615 1.0699 1.0399 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.5000 | 0.1459 -0.458 -0.4158 -0.4159 -0.4159 -0.4002 | 0.7756 1.0171 1.0015 0.7970 0.0070 0.0070 0.00865 0.00867 |
| UPPER 1 2 3 4 5 6 7 8 | \$10E 0.0 0.0250 0.0500 0.0750 0.1700 0.1700 0.2700 0.2700 0.3000 0.4000 0.5000 | CP -0.0474 -1.0485 -0.9705 -2.975 -1.0304 -0.9776 -0.9468 -0.8704 -0.8701 -0.8701 | ML 0.8221 1.3277 1.2933 1.2955 1.2989 1.2653 1.2673 1.2275 1.1863 1.1476 | 0.0 9.0250 9.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | -0.4630 -0.8357 -0.8127 -0.8250 -0.7053 -0.7708 -0.7202 -0.6721 -0.6251 | ML 1.0138 1.2090 1.1915 1.1876 1.1876 1.1698 1.1698 1.1639 1.1425 1.1179 1.0945 | 0.0 0.2570 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 | 0.1193 -0.5013 -0.5796 -0.5746 -0.5676 -0.5676 -0.5165 -0.4751 | ML 0.7373 1.0766 1.0710 1.0693 1.0655 1.0615 1.0699 1.0399 1.0290 1.0194 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.4000 0.7000 | 0.1659 -0.4589 -0.4488 -0.4358 -0.4758 -0.4059 -0.4079 -0.4002 -0.4002 | 0.7756 1.0773 1.0773 1.0773 1.0775 0.7970 0.0970 0.0985 0.0857 0.0941 |
| UPPER 1 2 3 4 5 6 7 8 9 | SIDE 0.0 0.0250 0.0550 0.0750 0.1700 0.1500 0.2003 0.3000 0.4000 0.5000 0.6000 | CP -0.0474 -1.0485 -0.9705 -0.9752 -1.0004 -0.9776 -0.9468 -0.8714 -0.8011 -0.7294 -0.4444 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2653 1.2673 1.2275 1.1876 1.1476 1.1033 | 0.0 9.0250 9.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | -0.4630 -0.8357 -0.8127 -0.8050 -0.7753 -0.7708 -0.7202 -0.6721 -0.6251 -0.5818 | HL 1.0138 1.2050 1.1215 1.1876 1.1826 1.1639 1.1639 1.1425 1.177 1.0750 | 0.0 0.2570 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 | 0.1193 -0.5013 -0.5796 -0.5746 -0.5746 -0.5869 -0.5165 -0.4915 -0.4915 -0.4490 | ML 0.7373 1.0766 1.0710 1.0643 1.0645 1.0649 1.0399 1.0399 1.0399 1.0194 1.0075 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.5000 0.7000 0.8000 | 0.1659 -0.4689 -0.4498 -0.4158 -0.4159 -0.4077 -0.4002 -0.4002 -0.4002 -0.4002 | 0.7756 1.0173 1.0015 0.0016 0.0020 0.0020 0.0041 0.0041 0.0044 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.5000 0.6333 0.7000 | CP -0.0474 -1.0485 -0.9705 -0.9752 -1.0304 -0.9776 -0.9468 -0.8311 -0.7294 -0.8644 -0.5632 | ML 0-8221 1-3277 1-2933 1-2955 1-2959 1-2673 1-2673 1-1476 1-1073 1-1073 1-10633 | 0.0 0.0250 0.0250 0.0500 0.0750 0.1000 0.2000 0.3000 0.4000 0.5000 0.4000 | -0.4630 -0.4157 -0.4127 -0.4127 -0.4753 -0.7708 -0.7609 -0.7207 -0.6251 -0.6251 -0.5818 -0.5311 | H(1.0138 1.2040 1.1015 1.1876 1.1826 1.1639 1.1639 1.1625 1.1173 1.0645 | 0.0 0.2570 0.1000 0.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 | 0.1393 -0.5913 -0.5796 -0.5746 -0.5585 -0.4369 -0.4915 -0.4915 -0.4915 -0.490 | ML 0.7373 1.0766 1.0710 1.0683 1.3645 1.9615 1.0499 1.0399 1.0194 1.0290 1.0194 1.0975 0.9976 | 0.0 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.5000 0.5000 0.5000 0.5000 | 0-1659 -0.458 -0.4458 -0.4158 -0.4159 -0.4079 -0.4072 -0.4022 -0.4022 -0.3037 -0.47439 | 0.7756 1.0773 1.0791 1.0015 0.7970 0.9970 0.9867 0.9867 0.9867 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | SIDE 0.0 0.0250 0.0500 0.0750 0.1200 0.1200 0.2700 0.3000 0.4000 0.5000 0.4000 0.5000 0.7000 0.8000 | -0.0474 -1.0485 -0.935 -0.9352 -1.0304 -0.9776 -0.9468 -0.8714 -0.831 -0.7294 -0.6444 -0.5632 -0.4920 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2673 1.2673 1.1476 1.1043 1.0633 1.0282 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.5000 0.7000 | -0.4630 -0.4630 -0.4357 -0.4122 -0.4050 -0.7708 -0.7708 -0.7202 -0.4721 -0.6251 -0.5311 -0.4939 | H(1.0138 1.2040 1.1015 1.1876 1.1826 1.1698 1.1639 1.1425 1.1179 1.0045 1.0740 1.0485 1.0270 | 0.0 0.3500 0.1500 0.1500 0.4500 0.4000 0.5000 0.7000 0.8000 0.9000 1.0000 | 0.1193 -0.5213 -0.5796 -0.5746 -0.5585 -0.5585 -0.5165 -0.4151 -0.4751 -0.4490 -0.4287 -0.4084 | ML 0.7373 1.0764 1.0710 1.0683 1.0645 1.0615 1.0499 1.0399 1.0399 1.0290 1.0194 1.0075 0.9976 0.9882 | 0.0 0.0500 0.1500 0.2000 0.4000 0.4000 0.4000 0.7000 0.7000 0.8000 0.9000 | 0.1659 -0.4689 -0.4498 -0.4761 -0.4159 -0.4078 -0.4078 -0.4078 -0.4074 -0.3937 -0.1739 -0.3341 | 0.7756 1.0171 1.0191 1.0015 0.3910 0.0920 0.0847 0.0847 0.0847 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | \$10E 0.0 0.0250 0.0500 0.0750 0.1000 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.6000 0.7000 | CP -0.0474 -1.0485 -0.9935 -0.9952 -1.0004 -0.9776 -0.9468 -0.8011 -0.7294 -0.6632 -0.4920 -0.4920 -0.4920 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2853 1.2673 1.1476 1.1013 1.0613 1.0272 0.9874 | 0.0 0.0250 0.0550 0.0750 0.1500 0.1500 0.3000 0.4000 0.5000 0.5000 0.7000 0.9000 | -0.4630 -0.4357 -0.4127 -0.4050 -0.7053 -0.7708 -0.7202 -0.6721 -0.6251 -0.5531 -0.4039 -0.4039 | HL 1.0138 1.2040 1.1015 1.1015 1.1026 1.1639 1.1639 1.1425 1.1177 1.0045 1.0740 1.0485 1.0485 1.0485 1.0270 1.0087 | 0.0 0.2500 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.7000 0.9000 1.0000 | 0.1193 -0.5716 -0.5776 -0.5676 -0.5676 -0.5869 -0.5165 -0.4915 -0.4915 -0.4287 -0.4084 | ML 0.7373 1.0766 1.0710 1.0643 1.0645 1.0649 1.0399 1.0399 1.0399 1.0194 1.0075 0.9976 0.9882 | 0.0 0.1000 0.1000 0.1000 0.2000 0.2000 0.4000 0.4000 0.7000 0.7000 0.9000 1.0000 | 0.1459 -0.4589 -0.4158 -0.4158 -0.4159 -0.4072 -0.4002 -0.4002 -0.4002 -0.3037 -0.3141 | 0.7756 1.0171 1.0011 0.0010 0.0010 0.0010 0.0017 0.0017 0.0017 0.0017 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | SIDE 0.0 0.0250 0.0500 0.0750 0.1200 0.1200 0.2020 0.3000 0.4000 0.5000 0.6331 0.7020 0.8360 0.2020 | -0.0474 -1.0485 -0.935 -0.9352 -1.0304 -0.9776 -0.9468 -0.8714 -0.831 -0.7294 -0.6444 -0.5632 -0.4920 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2673 1.2673 1.1476 1.1043 1.0633 1.0282 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.5000 0.7000 | -0.4630 -0.4630 -0.4357 -0.4122 -0.4050 -0.7708 -0.7708 -0.7202 -0.4721 -0.6251 -0.5311 -0.4939 | H(1.0138 1.2040 1.1015 1.1876 1.1826 1.1698 1.1639 1.1425 1.1179 1.0045 1.0740 1.0485 1.0270 | 0.0 0.3500 0.1500 0.1500 0.4500 0.4000 0.5000 0.7000 0.8000 0.9000 1.0000 | 0.1193 -0.5213 -0.5796 -0.5746 -0.5585 -0.5585 -0.5165 -0.4151 -0.4751 -0.4490 -0.4287 -0.4084 | ML 0.7373 1.0764 1.0710 1.0683 1.0645 1.0615 1.0499 1.0399 1.0399 1.0290 1.0194 1.0075 0.9976 0.9882 | 0.0 0.0500 0.1500 0.2000 0.4000 0.4000 0.4000 0.7000 0.7000 0.8000 0.9000 | 0.1659 -0.4689 -0.4498 -0.4761 -0.4159 -0.4078 -0.4078 -0.4078 -0.4074 -0.3937 -0.1739 -0.3341 | 0.7756 1.0171 1.0015 0.7770 0.7770 0.7770 0.7770 0.7770 0.7770 0.7770 0.7770 0.7770 0.7770 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LOWER | SIDE 0.0 0.0250 0.0500 0.0750 0.1500 0.1500 0.2700 0.3000 0.4000 0.5000 0.4000 0.7000 0.8000 0.9000 1.9000 1.9000 510F | -0.0474 -1.0485 -0.9705 -0.9705 -0.9776 -0.9776 -0.9468 -0.9704 -0.8011 -0.7294 -0.5632 -0.4071 -0.4071 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2673 1.2275 1.1663 1.1663 1.16633 1.0282 0.9874 0.9477 | 0.0 0.0250 0.0250 0.0750 0.1760 0.1860 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.8000 0.8000 | -0.4630 -0.4630 -0.8157 -0.8127 -0.8050 -0.7758 -0.7760 -0.7207 -0.6251 -0.6251 -0.4039 -0.4514 -0.4690 | HL 1.0138 1.2050 1.1015 1.1015 1.1026 1.1638 1.1639 1.1425 1.1172 1.0045 1.0745 1.0745 1.0745 1.0270 1.0087 | 0.0 0.350 0.1500 0.1500 0.2000 0.4000 0.5000 0.6000 0.9000 0.9000 0.000 | 0.1193 -0.5716 -0.5776 -0.5776 -0.5676 -0.5676 -0.569 -0.5165 -0.4915 -0.490 -0.4287 -0.4287 -0.4084 | ML 0.7373 1.0776 1.0710 1.0683 1.9615 1.0419 1.0199 1.0199 1.0199 1.0199 1.0975 0.9976 0.9882 | 0.0 0.1500 0.1500 0.2500 0.2000 0.4000 0.5000 0.5000 0.7000 0.7000 0.0000 0.0000 | 0.1659 -0.4699 -0.4699 -0.4158 -0.4159 -0.4079 -0.4079 -0.4074 -0.3037 -0.1639 -0.33341 0.0 | 0.7756 1.0771 1.0014 1.0014 0.7970 0.0920 0.0847 0.0847 0.0847 0.0847 0.0847 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 10 00 00 1 | SIDE 0.0 0.0250 0.0550 0.0750 0.1500 0.1500 0.2020 0.3000 0.4000 0.5000 0.6000 0.6000 0.7020 0.7020 0.7020 0.7020 0.7020 | -0.0474 -1.0485 -0.9755 -1.9752 -1.0304 -0.9776 -0.9468 -0.8711 -0.7294 -0.8632 -0.4920 -0.4920 -0.4920 -0.3222 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2653 1.2673 1.1476 1.1013 1.0613 1.0628 0.9874 0.9477 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1000 0.2000 0.4000 0.5000 0.5000 0.7000 0.9000 0.9000 | -0.4630 -0.4630 -0.4157 -0.4127 -0.4050 -0.7953 -0.7708 -0.7207 -0.6251 -0.6251 -0.5331 -0.4039 -0.4039 -0.4039 | HL 1.0138 1.2050 1.1915 1.1876 1.1876 1.1698 1.1698 1.1698 1.1698 1.1698 1.0045 1.0045 1.0045 1.0087 0.9884 | 0.0 0.2570 0.1590 0.1590 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.9000 1.0000 | 0.1393 -0.5013 -0.5746 -0.5746 -0.5676 -0.5585 -0.5369 -0.4165 -0.4751 -0.4450 -0.4287 -0.4084 0.0 | 0.7373 1.0764 1.0710 1.0693 1.0693 1.0499 1.0399 1.0399 1.0299 1.0299 1.0299 1.09975 0.9976 0.9976 0.9976 | 0.0 0.1000 0.1500 0.2000 0.2000 0.4000 0.5000 0.7000 0.7000 0.0000 1.0000 0.000 | 0.1659 -0.4698 -0.4358 -0.4758 -0.4759 -0.4079 -0.4079 -0.4079 -0.4072 -0.3341 0.0 | 0.7756 1.0391 1.0391 1.0391 1.0391 0.0920 0.0920 0.0941 0.0941 0.0941 0.0972 0.0912 0.0912 0.0912 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 10 6 M 1 2 | SIDE 0.0 0.0250 0.0250 0.0750 0.1000 0.1000 0.1000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.7000 0.9000 0.9000 0.9000 | -0.0474 -1.0485 -0.9705 -0.9705 -0.9776 -0.9776 -0.9311 -0.7294 -0.8311 -0.7294 -0.8311 -0.7294 -0.8311 -0.7294 -0.8311 -0.7294 -0.8311 -0.7294 -0.8311 -0.831 | ML 0.8221 1.3277 1.2933 1.2955 1.2959 1.2673 1.2673 1.12673 1.1476 1.1013 1.0613 1.0292 0.9874 0.9877 | 0.0 0.0250 0.0550 0.0750 0.1000 0.1500 0.2000 0.5000 0.5000 0.5000 0.7000 0.9000 1.0000 | -0.4630 -0.4630 -0.4157 -0.4122 -0.8050 -0.7708 -0.7708 -0.7202 -0.6721 -0.6251 -0.5311 -0.4039 -0.4030 -0.4630 0.5627 | HL 1.0138 1.2050 1.1015 1.1876 1.1876 1.1698 1.1698 1.1429 1.1425 1.1179 1.0045 1.0740 | 0.0 0.3500 0.1500 0.1500 0.2000 0.4000 0.5000 0.7000 0.7000 0.7000 0.9000 0.0000 | 0.1393 -0.5013 -0.5796 -0.5746 -0.5865 -0.4585 -0.4585 -0.4915 -0.4751 -0.4287 -0.4287 -0.4084 0.0 | 0.7373 1.0774 1.0770 1.0643 1.0643 1.0643 1.0349 1.0349 1.0375 0.9976 0.9882 0.0 | 0.0 0.0*00 0.1500 0.2000 0.4000 0.4000 0.5000 0.7000 0.7000 0.7000 0.0000 | 0.1659 -0.4698 -0.4158 -0.4159 -0.4072 -0.4072 -0.4002 -0.3037 -0.1739 -0.3037 -0.3141 0.0 | 0.7756 1.0771 1.0701 1.0701 1.0701 0.0970 0.0970 0.0987 0.0487 0.0487 0.0487 0.0487 0.0487 0.0577 0.0577 0.0577 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 10 00 00 1 | SIDE 0.0 0.0250 0.0550 0.0550 0.1000 0.1750 0.1500 0.2700 0.3000 0.4000 0.5000 0.5000 0.8000 0.9000 1.0000 1.0000 0.05000 0.05000 0.05000 0.05000 0.05000 | -0.0474 -1.0485 -0.9755 -0.9755 -1.0304 -0.9776 -0.9776 -0.8311 -0.7724 -0.632 -0.4920 | 0.8221 1.3277 1.2933 1.2955 1.2999 1.2853 1.2673 1.2673 1.1676 1.1033 1.0613 1. | 0.0 0.0250 0.0250 0.0750 0.1760 0.1560 0.2000 0.3000 0.5000 0.5000 0.9000 1.0000 | -0.4630 -0.4157 -0.4157 -0.4157 -0.4753 -0.7704 -0.7704 -0.7202 -0.6721 -0.6251 -0.6251 -0.5314 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 | HL 1.0138 1.2050 1.1015 1.1015 1.1026 1.1608 1.1608 1.1608 1.1608 1.1608 1.0750 1.0750 1.0768 1.0750 1.0886 1.0138 0.5479 0.6175 | 0.0 0.2520 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.7000 0.9000 1.0000 0.0 | 0.1393 -0.5746 -0.5746 -0.5746 -0.5867 -0.5869 -0.5165 -0.4915 -0.4490 | 0.7373 1.0764 1.0710 1.0683 1.0455 1.0415 1.0499 1.0399 1.0399 1.0399 1.0194 1.0975 0.9976 0.9976 0.9976 0.00 | 0.0 0.0*00 0.1500 0.2000 0.2000 0.4000 0.4000 0.4000 0.7000 0.8000 1.0000 0.0 | 0.1659 -0.4698 -0.4598 -0.4159 -0.4159 -0.4002 -0.4002 -0.3037 -0.3331 -0.3331 -0.00 | 0.7756 1.0173 1.0305 0.0075 0.0070 0.0070 0.0041 0.0411 0.0577 0.0577 0.0577 0.0577 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 COMER 1 2 3 4 | SIDE 0.0 0.0250 0.05500 0.0750 0.1000 0.1750 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.9000 1.0000 510E 0.05000 0.05000 0.05000 0.15000 0.15000 | CP -0.0474 -1.0485 -0.9705 -0.9705 -0.9776 -0.9776 -0.9776 -0.9711 -0.794 -0.6444 -0.5632 -0.4970 -0.3724 -0.5145 0.4017 0.3331 | #L 0.8221 1.3273 1.2933 1.2955 1.2653 1.2653 1.2673 1.1676 1.1013 1.0632 0.9874 0.9977 0.9221 0.5522 0.6667 | 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.4000 0.5000 0.5000 0.9000 1.0000 0.0500 0.1500 0.1500 | CP -0.4630 -0.4377 -0.4157 -0.4157 -0.7503 -0.7708 -0.7708 -0.7202 -0.4721 -0.5518 -0.5318 -0.4039 -0.4514 -0.4039 -0.4510 -0.4039 -0.4510 -0.4039 -0.4910 -0.4039 | ML 1.0138 1.2010 1.1915 1.1915 1.1926 1.1938 1.1638 1.1638 1.1625 1.1172 1.0045 1.0745 | 0.0 0.2500 0.1500 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.0000 0.0000 0.1500 | 0.1393 -0.5013 -0.5714 -0.5746 -0.5585 -0.4567 -0.5165 -0.4915 -0.4751 -0.490 -0.4287 -0.400 0.0 | ML 0.7373 1.0710 1.0710 1.0843 1.0545 1.0545 1.0499 1.0299 1.0194 1.0975 0.9782 0.0 0.7373 0.5705 0.6550 | 0.0 0.0*00 0.1500 0.2500 0.450 | 0.1659 -0.4489 -0.4358 -0.4259 -0.4261 -0.4159 -0.4002 -0.4002 -0.3037 -0.4002 -0.3037 -0.3341 0.0 | 0.7756 1.0171 1.0301 1.0301 1.0301 1.0301 0.0300 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 10 00 00 1 1 5 1 5 1 5 1 5 1 5 1 5 1 | SIDE 0.0 0.0250 0.05250 0.0500 0.1000 0.1500 0.2700 0.3000 0.4000 0.5000 0.6000 0.7000 0.1000 0.1000 0.1000 0.1000 0.1000 0.1000 0.1500 0.1500 | CP -0.0474 -1.0485 -0.9765 -0.9767 -0.9767 -0.9768 -0.9768 -0.9768 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9769 -0.9771 -0.3222 -0.974 | ML 0.8221 1.3273 1.2933 1.2955 1.2959 1.2653 1.2755 1.1676 1.1033 1.0213 1.0287 0.9874 0.9877 0.8221 0.6567 0.6688 | 0.0 0.0250 0.0550 0.0750 0.1750 0.1500 0.2000 0.5000 0.5000 0.5000 0.7000 0.9000 0.9000 0.9000 0.050 | CP -0.4630 -0.417 -0.8127 -0.8050 -0.7753 -0.7708 -0.7708 -0.7202 -0.6251 -0.6818 -0.4630 -0.4531 -0.4030 -0.4530 -0.4530 -0.4531 -0.4030 -0.4530 | ML 1.0138 1.205 1.1015 1.1015 1.1025 1.1026 1.1029 1.1029 1.1029 1.0045 1.0710 1.0045 1.0710 1.0045 1.0710 1.0045 1.0710 1.0045 1.0710 1.0045 | 0.0 0.3370 0.1000 0.1500 0.2000 0.3000 0.5000 0.7000 0.9000 0.9000 0.0000 0.0000 0.1000 0.1500 0.1500 | 0.1193 -0.5913 -0.5714 -0.5746 -0.5585 -0.3667 -0.4751 -0.490 -0.4751 -0.490 -0.400 -0 | ML 0.7373 1.0776 1.0710 1.0883 1.0445 1.0493 1.0194 1.0299 1.0299 0.0976 0.976 0.976 0.976 0.00 0.7373 0.6355 0.6355 0.6355 | 0.0 0.0703 0.1050 0.1550 0.2000 0.4000 0.5000 0.7000 0.7000 0.0000 0.0000 0.0000 0.1500 0.1500 | 0.1659 -0.4781 -0.4781 -0.4781 -0.4781 -0.4781 -0.4092 -0.9092 -0.9092 -0.1659 -0.1659 -0.1659 -0.2781 -0.1659 -0.2781 -0.1659 -0.2781 -0.1659 | 0.7256 1.0171 1.0311 1.0315 0.0010 0. |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 6 15 6 6 5 6 | SIDE 0.0 0.0250 0.05250 0.0505 0.1500 0.1500 0.4000 0.4000 0.5000 0.6000 0.7000 0.7000 0.7000 0.7000 0.7000 0.7000 0.7000 0.7000 | CP -0.0474 -1.0475 -0.7755 -0.7755 -1.0304 -0.7776 -0.7756 -0.7756 -0.7756 -0.7563 -0.5071 -0.7222 -0.0471 -0.3311 -0.7707 -0.3311 -0.7707 -0.3516 -0. | ML 0.8217 1.3273 1.2733 1.2755 1.2653 1.2653 1.2663 1.2673 1.1863 1.1676 1.1073 1.0683 1.0775 0.9874 0.9477 0.95522 0.6167 0.6468 0.6773 | 0.0 0.0250 0.0250 0.0753 0.1000 0.1500 0.2003 0.3000 0.5000 0.5000 0.9000 0.9000 0.1000 0.0500 0.1000 0.1000 0.1000 | CP -0.46197 -0.8157 -0.8122 -0.9753 -0.7708 -0.7629 -0.6721 -0.6251 -0.511 -0.4039 -0.4090 -0.4090 -0.4090 -0.4090 -0.4090 -0.4090 | ML 1.0136 1.2000 1.1015 1.1015 1.1026 1.1026 1.1039 1.1425 1.1039 1.1425 1.0045 1.0047 0.0047 | 0.0 0.3510 0.1500 0.1500 0.200 0.3000 0.5000 0.5000 0.7000 0.8000 0.000 0.000 0.000 0.1500 0.1500 0.1500 0.1500 | 0.1393 -0.5714 -0.5746 -0.5875 -0.5875 -0.5875 -0.497 -0.4470 -0.4470 -0.497 -0 | ML 0.7373 1.0716 1.0710 1.0893 1.0493 1.0499 1.0199 1.0199 1.0279 0.07976 0.9892 0.0 0.7373 0.6705 0.6710 0.7093 | 0.0 0.0503 0.1050 0.1550 0.2000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | 0.1450 -0.449 -0.449 -0.4751 -0.4159 -0.4072 -0.4072 -0.1073 -0.139 -0.3341 -0.907 -0.277 -0.2741 -0.139 -0.277 -0.2741 -0.131 | 0.7756 1.0171 1.0371 1.0371 1.0371 1.0371 1.0371 1.0371 0.041 0.041 0.041 0.041 0.041 0.041 0.0577 0.0 0.7756 0.5048 0.5071 0.7756 0.5048 0.647 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 10 WER 1 2 3 4 5 6 7 | SIDE 0.0 0.0250 0.0550 0.05750 0.1590 0.2703 0.3000 0.4080 0.5000 0.6031 0.7020 0.3000 0.7020 0.3000 0.7020 0.3000 0.7020 0.3000 0.7020 0.3000 0.7020 0.3000 0.7020 | CP -0.0474 -1.0485 -0.0715 -0.0715 -0.0715 -0.0715 -0.0715 -0.0716 -0.0716 -0.0716 -0.0716 -0.0716 -0.0717 -0. | ML 0.8221 1.273 1.293 1.2955 1.2963 1.2963 1.2673 1.275 1.1863 1.0273 0.9874 0.9877 0.9221 0.5522 0.6167 0.6688 0.7754 | 0.0 9.0250 9.0500 0.3753 0.1000 0.1500 0.2003 0.3000 0.5000 0.5000 0.5000 0.4000 0.4000 0.4000 0.1500 0.1500 0.1500 0.1500 0.4000 0.4000 0.4000 0.4000 | CP -0.4630 7 -0.4130 7 -0.4130 7 -0.4122 -0.950 -0.753 -0.770 8 -0.7721 -0.6214 -0.5311 -0.5311 -0.4030 -0.4030 0.5427 0.4030 0.5427 0.4030 0.2525 0.0453 0.0245 | ML 1.0130 1.2010 1.2010 1.2015 1.2015 1.2016 1.2016 1.1020 1.1020 1.1020 1.1020 1.0020 | 0.0 0.3510 0.1000 0.1500 0.2000 0.3000 0.5000 0.7000 0.7000 0.9000 0.9000 0.000 0.1000 0.11000 0.11000 0.11000 0.2000 0.2000 0.2000 | 0.1393 -0.5714 -0.5746 -0.5746 -0.575 -0.575 -0.5163 -0.5163 -0.4751 - | 0.7373 1.07/6 1.07/6 1.07/6 1.06/9 1.06/9 1.06/9 1.02/9 1.01/9 1.02/9 1.01/9 0.07/9 0.0 0.7373 0.63/9 0.63/9 0.70/9 0.70/9 0.70/9 | 0.0 0.0 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0 | 0.1450 -0.459 -0.459 -0.459 -0.459 -0.459 -0.459 -0.469 -0.469 -0.469 -0.393 -0.393 -0.393 -0.393 -0.393 -0.393 -0.393 -0.393 -0.393 -0.393 -0.393 -0.493 -0 | 0.7756 1.0171 1.0301 1.0301 1.0301 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.000 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOMER 2 3 4 5 6 7 6 | SIDE 0.0 0.0250 0.0550 0.0750 0.1700 0.1700 0.2703 0.3000 0.4000 0.7000 | CP -0.0474 -1.0485 -0.9705 -0.9705 -0.9776 -0.9769 -0.9706 -0.9706 -0.9704 -0.5012 -0.0716 -0.5012 -0.0716 -0.5016 -0.9011 -0.7222 -0.0471 -0.3311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.7709 -0.5016 -0.9311 -0.5016 -0.9311 -0.5016 -0.9311 -0.5016 -0. | ML 0.821 1.327 1.2933 1.2959 1.2653 1.2673 1.2673 1.1676 1.1663 1.0282 0.9877 0.5522 0.6167 0.6773 0.7759 | 0.0 9.0250 9.0500 9.0752 1.1000 9.1500 9.2020 9.3000 9.5000 9.5000 1.0000 1.0000 0.5000 | CP -0.46397 -0.4157 -0.4122 -0.9036 -0.7708 -0.7708 -0.7202 -0.4721 -0.6251 -0.4514 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 | ML 1.0136 1.2036 1.1915 1.1876 1.1876 1.1876 1.1876 1.1879 1.1425 1.1639 1.1425 1.0130 1.0485 1.0270 1.0087 0.6587 0.6587 0.6887 0.7802 0.7802 0.7802 0.7803 | 0.0 0.3590 0.1500 0.1500 0.2900 0.3000 0.4000 0.4000 0.7000 0.7000 0.0000 0.0000 0.1500 0.1500 0.2000 0.4000 0.4000 0.4000 | 0.1393 -0.5796 -0.5746 -0.5746 -0.5585 -0.4565 -0.4165 -0.4469 -0.4490 -0.4490 -0.490 -0.490 -0.490 -0.490 -0.490 -0.490 -0.4969 -0.2849 -0.2149 -0.2149 -0.0287 -0.0287 | ML 0.7373 1.0776 1.0776 1.0710 1.0845 1.015 1.049 1.0194 1.0279 1.0194 1.0275 0.982 0.0 0.7373 0.6510 0.7373 0.7331 0.7331 0.7331 0.7331 0.7331 | 0.0 0.0 0.1000 0.1500 0.2600 0.4000 0.4000 0.4000 0.7000 0.7000 0.0000 0.0000 0.0000 0.2000 0.2000 0.2000 0.2000 0.2000 | 0.1450 -0.449 -0.449 -0.4781 -0.4199 -0.4092 -0.4092 -0.9037 -0.139 -0.3141 -0.9037 -0.277 -0.27414 -0.1013 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 | 0.7256 1.0731 1.0731 1.0731 1.0715 0.0720 0.0720 0.0445 0.0447 0.0442 0.047 0.047 0.047 0.0726 0.7756 0.7756 0.7757 0.7471 0.8471 0.8471 0.7551 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 6 7 8 9 9 6 7 8 9 9 6 7 8 9 9 6 7 8 9 9 | SIDE 0.0 0.0 0.0250 0.0550 0.1500 0.2703 0.2003 0.4000 0.5000 | -0.0474 -1.0485 -0.9705 -0.9705 -0.9705 -0.9716 -0.9716 -0.9716 -0.9311 -0.2944 -0.9631 -0.4920 -0.4920 -0.4920 -0.5071 -0.3222 -0.4920 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.3222 -0.5071 -0.507 | #L 0.821 1.3277 1.293 1.295 1.2969 1.2653 1.2673 1.1676 1.1676 1.1676 1.1677 0.9877 0.9877 0.9877 0.9877 0.9877 0.9877 0.68673 0.7752 0.77540 | 0.0 9.0250 9.0550 0.3753 0.1760 0.2033 0.3060 0.4000 0.5000 0.5000 0.4000 0.1000 0.000 0.1000 0.1500 0.2000 0.4000 0.4000 0.4000 0.4000 | CP -0.4630 -0.4137 -0.1127 -0.950 -0.753 -0.7708 -0.7721 -0.6721 -0.6721 -0.6731 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 | ML 1.0130 1.2010 1.2010 1.2015 1.2015 1.2016 1.2016 1.1020 1.1020 1.1020 1.1020 1.0020 | 0.0 0.3590 0.1000 0.1500 0.2000 0.3000 0.5000 0.7000 0.8000 0.9000 0.0000 0.1000 0.1000 0.1000 0.2000 0.2000 0.2000 0.5000 0.2000 | 0.1393 -0.5713 -0.5746 -0.5746 -0.575 -0.575 -0.575 -0.575 -0.4751 -0.4751 -0.4751 -0.4751 -0.4751 -0.4751 -0.4751 -0.4751 -0.4064 -0.503 -0.4751 -0.4064 -0.503 -0.4751 -0.4064 -0.503 -0.4751 -0.4064 -0.503 -0.503 -0.50 | 0.7373 1.0766 1.0766 1.0769 1.0893 1.0893 1.0893 1.0194 1.0279 1.0194 1.0279 0.07976 0.7976 0.7976 0.6350 0.6350 0.67979 0.7978 | 0.0 0.0 0.1000 0.1500 0.2000 0.4000 0.5000 0.7000 0.9000 0.0000 0.0000 0.0000 0.0000 0.0000 0.7500 0.0000 0.7500 0 | 0.1450 -0.459 -0.459 -0.459 -0.459 -0.459 -0.409 -0.409 -0.409 -0.3097 -0.3097 -0.309 -0.3097 -0.309 -0.3097 -0.309 -0.3097 -0.309 -0.3097 -0. | 0.72%6 1.01%1 1.03%1 1.03%1 1.03%1 0.03%0 0.03%1 0.04%1 0.04%1 0.04%1 0.04%1 0.04%1 0.05%1 0. |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 LOMER 2 3 4 5 6 7 6 | SIDE 0.0 0.0250 0.0550 0.0750 0.1700 0.1700 0.2703 0.3000 0.4000 0.7000 | CP -0.0474 -1.0485 -0.9705 -0.9705 -0.9776 -0.9769 -0.9704 -0.9711 -0.7294 -0.5012 -0.9011 -0.7222 -0.9011 -0.7222 -0.9017 -0.9011 -0.707 -0.9011 -0.707 -0.9011 -0.707 -0.901 | ML 0.821 1.327 1.2933 1.2959 1.2653 1.2673 1.2673 1.1676 1.1663 1.0282 0.9877 0.5522 0.6167 0.6773 0.7759 | 0.0 9.0250 9.0500 9.0752 1.1000 9.1500 9.2020 9.3000 9.5000 9.5000 1.0000 1.0000 0.5000 | CP -0.46397 -0.4157 -0.4122 -0.9036 -0.7708 -0.7708 -0.7202 -0.4721 -0.6251 -0.4514 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 -0.4030 | ML 1.0136 1.2036 1.1915 1.1876 1.1876 1.1876 1.1876 1.1879 1.1425 1.1639 1.1425 1.0130 1.0485 1.0270 1.0087 0.6587 0.6587 0.6887 0.7802 0.7802 0.7802 0.7803 | 0.0 0.3590 0.1500 0.1500 0.2900 0.3000 0.4000 0.4000 0.7000 0.7000 0.0000 0.0000 0.1500 0.1500 0.2000 0.4000 0.4000 0.4000 | 0.1393 -0.5796 -0.5746 -0.5746 -0.5585 -0.4565 -0.4165 -0.4469 -0.4490 -0.4490 -0.490 -0.490 -0.490 -0.490 -0.490 -0.490 -0.4969 -0.2849 -0.2149 -0.2149 -0.0287 -0.0287 | ML 0.7373 1.0776 1.0776 1.0710 1.0845 1.015 1.049 1.0194 1.0279 1.0194 1.0275 0.982 0.0 0.7373 0.6510 0.7373 0.7331 0.7331 0.7331 0.7331 0.7331 | 0.0 0.0 0.1000 0.1500 0.2600 0.4000 0.4000 0.4000 0.7000 0.7000 0.0000 0.0000 0.0000 0.2000 0.2000 0.2000 0.2000 0.2000 | 0.1450 -0.449 -0.449 -0.4781 -0.4199 -0.4092 -0.4092 -0.9037 -0.139 -0.3141 -0.9037 -0.277 -0.27414 -0.1013 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 -0.1137 | 0.7256 1.0771 1.0771 1.0771 1.0771 1.0775 0.0770 0.0771 0.0771 0.0772 0.0577 0.0775 0.0775 0.7756 0.7756 0.7756 0.7756 0.7757 0. |

Table 3.10: Pressure data (M = 0.8 $\alpha = 8^{\circ}$)

| | | SECTION | 1 115 | | SECTION | 1 | | SECTION | 2 | | SECTION | 3 |
|--|--|---|--|--|---|--|--|---|--|--|---|---|
| 1111 | x/C | Cr | Mt | K/C | CP | ML | X/C | CP | ML | X/C | CP | ML |
| UPPER | SIDE | | | | | | | | | | | |
| 1 | 0.1 | 0.6300 | 0.3775 | 0.0 | 0.6192 | 0.4197 | C. C | 0.5471 | 0.4419 | 0.0 | 0.4556 | 0.4618 |
| 2 | 0.0251 | -3.5296 | 0.8310 | 0.0250 | - 3.7479 | 0.9221 | 0.0250 | -0.7810 | 0.9200 | 0.0250 | -3.8633 | 0.9500 |
| 3 | C. 0530 | -0.63HO | C.87C3 | 0.0500 | -0.136H | 0.9040 | 0.0503 | -0.7360 | 0.9043 | 0.0500 | -0.8547 | . 0. 9456 |
| | 0.3753 | -0.5351 | 0.8147 | 0.0750 | - 0. 6391 | 0.8731 | 0.0750 | -0.7033 | 0.85.9 | 0.0750 | -0.7831 | 0.9237 |
| 5 | 3.1330 | -).4882 | 0.8188 | 0.100) | -0.5578 | 0.8475 | 0.1000 | -0.6324 | 0.8684 | 0.1000 | -9.6862 | 0.8870 |
| 6 | 0.1510 | -0.36.56 | C. 7715 | 0.1500 | -0.4576 | 0.4011 | 0.1500 | -0.4999 | 0.1225 | 0.1500 | -0.5786 | J. 8499 |
| 7 | 0.2000 | -3.1944 | 0. 1845 | 0.2000 | -0.4545 | 0.8071 | 0.2000 | -0.4890 | 0.8187 | 0.2000 | -0.5353 | 0.8548 |
| 8 | 0.3010 | -0.3515 | 0.7719 | 0.3000 | -0.426A | 0.1974 | 0.3000 | -0.4412 | 0.8034 | 0.3000 | -0.4865 | 6.81 39 |
| 9 | 0.4000 | -0.1176 | C. 7057 | 0.4000 | -0.3707 | 0.7784 | 0.4000 | -0.4039 | 0.7894 | 0.4000 | -0.4304 | 0.7586 |
| 10 | 0.5000 | -0.3176 | 0.7675 | 0.5000 | -0.3/54 | 0.7766 | 0.5000 | -0.3840 | 0.7830 | 0.5000 | -0.3567 | 0.76:9 |
| 11 | 0.5000 | -3.2037 | 0.7492 | 0.6000 | -0.2987 | 0.7540 | 0.6000. | -0.3139 | 0.7590 | 0.6000 | -0.3133 | 0.7588 |
| 12 | 3.7330 | -0.7.81 | 0.7299 | 0.7000 | -0.2760 | C.7252 | 0.7000 | -0.2255 | 0.7250 | C. 70CO | -0.2202 | 0.7268 |
| 13 | 0.8330 | -0.1240 | C. 6538 | 0.8000 | -0.1003 | 0.6857 | 0.8000 | -0.0781 | 0.6864 | 0.8000 | -0.0967 | 0.08-5 |
| 14 | 3.9313 | -1.0 41 | 0.6606 | 0.9000 | - 3. 3020 | 0.6513 | 0.9000 | -0.0009 | 0.6506 | 0.9000 | 0.0039 | 0.5494 |
| 15 | 1.0000 | 2.3673 | C.6266 | 1.0000 | 0.0563 | 0.6161 | 1.0000 | 0.0964 | 0.6161 | 1.0000 | 0.1044 | 0.6132 |
| | SIDE | 7.0071 | 6.0200 | 1.0000 | 0.0103 | 0.0101 | 1.0000 | 0.0964 | 0.6161 | 1.0000 | 0.1044 | 0.01 32 |
| LOWER | 0.0 | 3.6930 | 0.3775 | 0.0 | 0.4182 | 0.4107 | 0.0 | 0.5471 | 0.4415 | C.C | 0.4995 | 0.4618 |
| 1 | | | 0.5615 | 9.0500 | 0.2103 | 0.5748 | | | | | | |
| | 0.0500 | 0.2455 | 0.5785 | 0.1300 | 0.2103 | 0.5909 | C.0500 | 0.1912 | 0.5816 | 0.0500 | 0.2020 | 0.5777 |
| 3 | 0.1010 | 3.1091 | | | | | 0.1000 | 0.1555 | 0.5946 | 0.1000 | 0.1418 | 0.5598 |
| 4 | 0.1500 | 0.1461 | 0.5980 | 0.1500 | 0.1119 | C.6106 | 0.1500 | 0.1026 | 0.6137 | 0.1500 | 0.0661 | 0.6158 |
| 5 | 0.7000 | 0.1102 | 0.5145 | 0.2000 | 3. 36 93 | 0.5258 | 0.2000 | 0.0545 | 0.6309 | 0.2000 | 3.0423 | 0.6353 |
| 6 | 0.4000 | - 1.0344 | 3.6624 | 0.4000 | -0.0784 | 0.6779 | 0.4000 | -0.0894 | C.6814 | C.4CGC | -0.0831 | C. 6770 |
| 1 | 0.5000 | -1.0625 | 0.6724 | 0.5000 | -0.0727 | 0.6759 | 0.5000 | -0.0740 | 0.6762 | 0.5030 | -0.0655 | 0.6731 |
| А | 0.5000 | -0.0151 | 0.6557 | 0.5000 | -0.0178 | 0.6565 | 0.6000 | -0.0181 | 0.6567 | 0.6000 | -0.0067 | 0.6526 |
| 9 | 0.8000 | 0.0063 | 0.6163 | C. HOCC | 0.1085 | 0.6115 | 0.8000 | 0.1201 | 0.6076 | 0.0000 | 0.1331 | 0.6028 |
| 10 | 0.9000 | 0.1:40 | 0.6099 | 0.9000 | 0.1289 | 0.6044 | 0.9000 | 0.1401 | 0.6002 | 0.9000 | 0.1375 | 0.6012 |
| 11 | 1.0000 | 0.0673 | 0.6766 | 1.0000 | 0.3963 | 0.6161 | 1.0000 | 0.0964 | 0.6161 | 1.0000 | 0.1044 | 0.5132 |
| NR | x/C | SECTION CP | 4 MI. | x/c | SECTION | 5 ML | x/C | SECTION | 6 ML | x/C | SECTION | 7 ML |
| HELLE | SIDE | | | | | | | | | | | |
| 1 | C.O | 0.4674 | 9.4754 | 0.0 | 0.2722 | 0.5517 | 0.0 | 0.5028 | 0.4576 | 0.0 | 0.5652 | 0.4340 |
| 2 | 0.0250 | -0.9409 | 0.9908 | 0.0250 | -0.9536 | 0.9813 | 0.0500 | -1.0597 | 1.0188 | 0.0500 | -3.9522 | 0.9946 |
| 3 | 0.7533 | -),0783 | 0.9722 | 0.0500 | -0.9081 | 0.9855 | C.1CC0 | -C.8204 | 0.9335 | C.1000 | -0.7750 | 0.91 +0 |
| 4 | 0.0750 | -0.8172 | C. 9326 | 0.0750 | -0.3656 | 0. 74 77 | 0.1500 | -0.7182 | 0.8578 | 0.1500 | -0.6361 | 0.8735 |
| 5 | 0.1000 | -3.7425 | 0.5363 | 0.1000 | - 3. 7976 | J. 9258 | 0.2000 | -0.5628 | 3.8444 | 0.2000 | -3.5363 | 0.8317 |
| 6 | 0.1500 | -0.638; | 0.9699 | 0.1500 | -2.6751 | 0.8831 | C. 3000 | -0.5100 | 0.8261 | 0.3000 | -0.4559 | C. E0# 0 |
| 7 | 0.2000 | - 1.5700 | 0.9468 | 0.2000 | -0.5527 | 0. 8547 | 0.,000 | -0.4665 | 0.8114 | 0.4000 | -0.3860 | J. 78 19 |
| 8 | 0.1000 | -3.5061 | 1.4249 | 0.3300 | -0.5158 | 0.8743 | 0.5000 | -0.4087 | 0.7916 | 0.5000 | -0.3529 | C. 7728 |
| | | | | | | | | | | | | |
| 4 | 0.4000 | -9.46.00 | 0.0087 | 0.4600 | -0.4598 | 0.80-6 | | | 0.7515 | 0.0000 | -0.2666 | 0.7410 |
| | 0.4000 | | | | -0.4598 | 0.80-6 | 0.7033 | -C.3207 | 0.7615 | 0.4000 | -0.2666 | 0.7430 |
| 4 | | -9.46.00 | 0.0027 | 9.4600 | -0.4225 | 0.7959 | 0.7033 | -0.3207 -0.2163 | 0.7255 | 0.7000 | -0.1648 | 0.7077 |
| 10 | 0.5010 | -0.4600 | 0.0087 | 0.4600 | -0.4225 -0.3275 | 0.7959 | 0.7033 C.8030 | -0.3207 -0.2163 -0.0558 | 0.7255 | 0.7000 | -0.1648 -0.0822 | 0.6785 |
| 10 11 12 | 0.5000 | -0.4600 -0.4101 -0.3257 | 0.acs7 0.7921 0.7628 0.7262 | 0.4600 0.5100 0.4000 0.7000 | -0.4225 -0.3275 -0.2218 | 0.7959 0.7638 0.7274 | C.6000 0.7033 C.8000 C.9000 | -0.3207 -0.2163 -0.0554 0.0253 | 0.6240 | 0.7000 0.8000 0.9000 | -0.1648 -0.6822 -0.0106 | 0.6755 0.6755 |
| 11 | 0.5010 | -0.4600 -0.4101 -0.3257 -0.2184 | 0.aC87 0.7921 0.7628 0.7262 0.6855 | 0.4600 0.5100 0.4000 0.7000 0.4000 | -0.4275 -0.3275 -0.2218 -0.1026 | 0.7959 0.7638 0.7274 0.6862 | 0.7033 0.8030 0.9003 1.0003 | -0.3207 -0.2163 -0.0554 0.0253 0.1463 | 0.7255 0.6840 0.6412 0.5980 | 0.7000 0.8000 0.9030 1.0000 | -0.1644 -0.0822 -0.0106 0.0611 | 0.7077 0.6789 0.6540 0.6287 |
| 10 11 12 13 | 0.5000 0.6000 0.7000 0.9000 | -0.4600 -0.4101 -0.3257 -0.2184 -3.1031 2.0029 | 0.aC£7 0.7921 0.7628 0.7262 0.6855 0.6654 | 0.4600 0.5100 0.4000 0.7000 0.8000 0.9000 | -0.4225 -0.3275 -0.2218 -0.1026 -0.0053 | 0.7959 0.7638 0.7274 0.6862 0.6521 | C.6000 0.7033 C.8050 C.9003 1.0003 | -0.3207 -0.2163 -0.0554 0.0253 0.1463 | 0.7255 0.6840 0.6412 0.5980 0.0 | 0.7000 0.8000 0.9000 1.0000 | -0.1648 -0.6822 -0.0106 0.0611 | 0.6789 0.6540 0.6587 0.0 |
| 10 11 12 13 14 15 | 0.5000 0.6000 0.7000 0.9000 | -0.4600 -0.4107 -0.3257 -0.2184 -3.1031 | 0.aC87 0.7921 0.7628 0.7262 0.6855 | 0.4600 0.5100 0.4000 0.7000 0.4000 | -0.4275 -0.3275 -0.2218 -0.1026 | 0.7959 0.7638 0.7274 0.6862 | 0.7033 0.8030 0.9003 1.0003 | -0.3207 -0.2163 -0.0554 0.0253 0.1463 | 0.7255 0.6840 0.6412 0.5980 | 0.7000 0.8000 0.9030 1.0000 | -0.1644 -0.0822 -0.0106 0.0611 | 0.7077 0.6789 0.6540 0.6287 |
| 11 12 13 14 15 | 0.5010 0.6000 0.7000 0.4000 0.4000 1.0000 SIDE | -0.4600 -0.4107 -0.3257 -0.2144 -3.1001 0.0029 0.1059 | 0.ac87 0.7921 0.7628 0.7762 0.6855 0.6464 0.6127 | 0.4600 0.5100 0.4000 0.4000 0.4000 1.4000 | -0.4225 -0.3275 -0.2218 -0.1026 -0.0053 0.0520 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 | C.6000 0.7033 C.8000 C.9000 1.0000 | -0.3207 -0.2163 -0.0554 0.0253 0.1463 0.0 | 0.7255 0.6840 0.6412 0.5980 0.0 | 0.7000 0.8000 0.9030 1.0000 0.0 | -0.1648 -0.6822 -0.0106 0.0611 0.0 | 0.7077 0.6755 0.6540 0.6287 0.0 |
| 10 11 12 13 14 15 | 0.5010 0.6000 0.7000 0.9000 0.3000 1.0000 SIDE | -0.4600 -0.4101 -0.2257 -0.2144 -0.1001 0.0029 0.1059 | 0. ac 87 3. 7921 6. 7628 0. 7262 3. 6855 0. 6454 3. 6127 | 0.4600 0.5100 0.4000 0.4000 0.9000 1.9000 | -0.4/25 -0.3275 -0.2218 -0.1026 -0.0053 0.0920 | 0.7959 0.763H 0.7274 0.6862 0.6521 0.6176 | C.6000 0.7033 C.8020 C.9003 1.0003 0.0 | -C.3207 -0.2163 -0.0458 0.0253 C.1463 0.0 | 0.7255 0.6440 0.6412 0.5980 0.0 0.0 | 0.7000 0.8000 0.9000 1.0000 0.0 | -0.1644 -0.0822 -0.0106 0.0611 0.0 | 0.7077 0.6755 0.6540 0.5287 0.0 0.0 |
| 10 11 12 13 14 15 LOWER 1 | 0.5010 0.4000 0.7000 0.3000 1.0000 SIDE 0.0 | -0.4600 -0.4101 -0.2257 -0.2144 -0.1001 0.0029 -0.1059 -0.4674 -0.2247 | 0. ac 87 3. 7921 0. 7628 0. 7262 0. 6855 0. 6454 0. 6127 0. 4754 0. 5655 | 0.4600 0.5100 0.4000 0.4000 0.9000 1.0000 | -0.425 -0.3275 -0.2218 -0.1076 -0.0053 0.0570 0.2722 0.2407 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 | C.6000 0.7033 C.8070 C.9003 1.0003 0.0 | -C.3207 -0.2163 -0.0458 0.0253 C.1463 0.0 0.0 | 0.7255 0.6440 0.6412 0.5980 0.0 0.0 | 0.7000 0.8000 0.9030 1.0000 0.0 | -0.1644 -0.0822 -0.0106 0.0611 0.0 0.5652 0.1281 | 0.7077 0.6785 0.6540 0.5287 0.0 0.0 |
| 10 11 12 13 14 15 104FR 1 | 0.5010 0.6020 0.7300 0.4000 0.4000 1.0000 SIDE 0.0 0.0500 0.1000 | -2.4600 -0.4101 -0.2257 -0.2144 -3.1001 2.0029 0.1359 -0.4674 0.2247 0.1106 | 0.ac87 0.7921 0.7628 0.7628 0.4955 0.6454 0.6127 0.4754 0.5655 0.6041 | 0.4600 0.5100 0.4000 0.4000 0.4000 0.4000 0.0000 0.0500 0.1000 | -0.4/25 -0.3275 -0.2218 -0.1026 -0.0053 0.0920 0.2722 0.2407 0.1364 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 | 0.6000 0.7033 0.8020 0.9003 1.0003 0.0 | -C.3207 -0.2163 -0.0554 0.0253 C.1463 0.0 0.0 | 0.7255 0.6840 0.6412 0.5980 0.0 0.0 0.4576 0.5750 0.6053 | 0.7000 0.8000 0.9030 1.0000 0.0 0.0 | -0.1644 -0.0822 -0.0196 0.0611 0.0 0.5652 0.1281 0.0354 | 0.7077 0.6745 0.6540 0.6267 0.0 0.0 0.4340 0.6046 0.6363 |
| 10 11 12 13 14 15 LOAFR 1 | 0.5010 0.6000 0.7000 0.9000 0.3000 1.0000 5106 0.0500 0.1500 | -9.4600 -0.4101 -0.2257 -0.2184 -0.1001 0.0029 -0.1059 -0.4674 0.2247 0.1106 0.0948 | 0. aC&7 0. 1921 0. 7628 0. 7262 0. 6655 0. 6664 0. 6157 0. 4754 0. 6169 | 0.4600 0.5160 0.4000 0.4000 0.4000 0.4000 0.0500 0.1000 0.1500 | -0.4,25 -0.3275 -0.2218 -0.1026 -0.0053 0.0520 0.2722 0.2407 0.1364 0.0837 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 | 0.6000 0.7033 0.8020 0.9003 1.0003 0.0 0.0 | -C.3207 -0.2163 -0.0558 0.0253 0.1663 0.0 0.0 0.5098 0.1991 0.1154 0.0632 | 0.7255 0.6440 0.6412 0.5980 0.0 0.0 0.4576 0.5750 0.6053 0.6280 | 0.7000 0.8000 0.9030 1.0000 0.0 0.0 0.0 0.0 0.1500 | -0.1644 -0.0822 -0.0106 0.0611 0.0 0.5652 0.1281 0.0354 0.0062 | 0.7077 0.6785 0.6540 0.65267 0.0 0.0 0.4340 0.6046 0.6363 0.6481 |
| 10 11 12 13 14 15 LOAFR 1 2 | 0.5010 0.6000 0.7000 0.9000 0.9000 1.0000 SIDE 0.0 0.1500 0.1500 0.2000 | -0.4600 -0.4107 -0.2257 -0.2144 -0.1001 0.0029 0.1559 0.4674 0.2247 0.1106 0.0948 0.0948 | 0. aC&7 0. 1421 0. 7628 0. 7742 0. 6855 0. 6464 0. 0127 0. 4754 0. 5655 0. 6641 0. 6169 0. 6274 | 0.4600 0.5100 0.4000 0.4000 0.4000 1.0000 0.0500 0.1000 0.1500 0.2500 | -0.4/25 -0.3275 -0.2218 -0.1026 -0.0053 0.0520 0.2722 0.2407 0.1364 0.0837 0.0412 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 0.6355 | 0.6000 0.7033 0.8000 0.9000 1.0000 0.0 0.0 0.0 0.1500 0.1500 0.2000 | -C.3207 -0.2163 -0.0958 0.0253 0.1463 0.0 0.0 0.5098 0.1991 0.1154 0.0632 0.0215 | 0.7255 0.6240 0.6412 0.5980 0.0 0.0 0.4576 0.5750 0.6053 0.6280 | 0.7000 0.8000 0.9030 1.0000 0.0 0.0 0.0 0.0500 0.1000 0.1500 0.2500 | 0.1644 -0.0622 -0.0106 0.0611 0.0 0.5652 0.1281 0.0354 0.0062 -0.0365 | 0.7077 0.6755 0.6540 0.5540 0.00 0.0 0.0 0.4340 0.6046 0.6363 0.6481 |
| 10 11 12 13 14 15 LOAFR 1 2 3 | 0.5010 0.6030 3.7300 0.4000 0.3000 1.0033 SIDE 0.0 0.0530 0.1500 0.2003 0.4000 | -0.4600 -0.4101 -0.2157 -0.2164 -0.1001 0.0029 0.1059 0.4674 0.2247 0.1306 0.0948 0.0549 -0.0678 | 0. ace7 1. 7421 0. 7628 0. 7362 0. 4855 0. 6464 0. 0127 0. 4754 0. 5655 0. 6041 0. 6169 0. 6274 0. 6274 | 0.4600 0.5100 0.4000 0.7000 0.4300 0.7000 1.0000 0.0500 0.1500 0.1500 0.2000 0.4500 | -0.4/25 -c.42/5 -0.2218 -0.1026 -0.0053 0.0920 0.2722 0.2407 0.1364 0.0837 0.0412 -0.0809 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 0.6355 | 0.6000 0.7033 0.8050 0.9003 1.6003 0.0 0.0 0.0 0.1503 0.1503 0.1503 0.2000 0.4000 | -C.3207 -0.2163 -0.0958 0.0253 0.1463 0.0 0.5098 0.1991 0.1154 0.0632 0.0215 -0.0904 | 0.7255 0.6440 0.6412 0.5980 0.0 0.4576 0.5750 0.6053 0.6280 0.6428 | 0.7000 0.9000 0.9000 1.0000 0.0 0.0 0.0 0.1000 0.1500 0.1500 0.2500 0.2500 0.4000 | -0.1648 -0.0622 -0.0196 0.0611 0.0 0.5652 0.1281 0.0354 0.0062 -0.0365 -0.1359 | 0.7077 0.6785 0.6540 0.6540 0.0287 0.0 0.0 0.4340 0.6046 0.6363 0.6481 0.6631 |
| 10 11 12 13 14 15 10 15 10 17 | 0.5010 0.6020 0.7020 0.9020 0.9020 1.0033 SINE 0.0 0.1500 0.1500 0.2003 0.4900 0.5000 | -0.4600 -0.4107 -0.2157 -0.2184 -0.1001 0.002 0.1159 0.4674 0.2147 0.1106 0.0448 0.0448 0.0448 | 0. ace7 1. 1921 0. 7628 0. 7628 0. 7722 0. 6855 0. 6464 0. 0127 0. 4764 0. 5655 0. 6041 0. 6169 0. 6174 0. 6654 | 0.4600 0.5100 0.4000 0.4000 0.4000 1.0000 0.0500 0.1000 0.1500 0.2000 0.4000 0.5000 0.4000 | -0.425 -2.3275 -0.2218 -0.1076 -0.0053 0.0570 0.2722 0.2407 0.1364 0.0837 0.3412 -0.0809 -0.0809 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 0.6747 0.6747 | C.6000 0.7033 C.8020 C.9003 1.0003 0.0 0.0 0.0 0.0 0.0 0.1503 C.2000 0.4000 C.5000 | -C.3207 -0.2163 -0.0958 -0.0958 -0.0253 -0.1663 -0.0 -0.5098 -0.1991 -0.1154 -0.0632 -0.0215 -0.0904 -0.0613 | 0.7255 0.6440 0.6412 0.5980 0.0 0.4576 0.675 0.6280 0.6428 0.6428 0.6421 0.6721 | 0.7000 0.9000 1.0000 0.0 0.0 0.0500 0.1000 0.1500 0.2000 0.5000 | -0.1648 -0.0622 -0.0196 0.0611 0.0 0.5652 0.1281 0.0354 0.0062 -0.0365 -0.1359 -0.1029 | 0.7077 0.6785 0.6540 0.65287 0.0 0.0 0.4340 0.6363 0.6481 0.6531 0.6589 0.6863 |
| 10 11 12 13 14 15 16 17 8 | 0.5010 C.6020 0.7020 0.9020 0.9020 1.0030 SIDE 0.0500 0.1500 0.1500 0.2000 0.4000 0.5000 0.5000 0.5000 0.5000 0.6000 | -0.46.00 -0.41.01 -0.23.57 -0.2184 -0.1001 0.022 0.1054 0.4674 0.2247 0.1106 0.3948 0.0468 -0.0678 -0.0678 -0.0678 -0.0678 | 0. ace7 0. 1921 0. 7628 0. 7262 0. 6625 0. 6424 0. 6127 0. 4754 0. 6274 0. 6274 0. 6274 0. 6654 0. 6654 0. 6654 | 0.4600 0.5100 0.4000 0.4000 0.4000 1.0000 0.1000 0.1500 0.1500 0.2000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 | -0.4275 -0.3275 -0.2218 -0.1076 -0.0053 0.0970 0.2722 0.2407 0.1869 0.0869 -0.0809 -0.0809 -0.0527 -0.0609 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 0.6796 0.6797 0.6466 | C.6000 0.7033 C.8050 C.9003 1.6003 0.0 0.0 0.0 0.0 0.1500 C.1000 0.1500 C.2000 0.4000 C.5000 | -C.3207 -0.2163 -0.0458 0.0253 0.1463 0.0 0.5098 0.1991 0.1154 0.0632 0.0215 -0.0904 -0.0618 | 0.7255 0.6440 0.6412 0.5980 0.0 0.0 0.4576 0.5750 0.6053 0.6283 0.6428 0.6821 0.6721 | 0.7000 0.8000 0.9000 1.0000 0.0 0.0 0.1000 0.1500 0.1500 0.2500 0.2500 0.2500 0.5000 | -0.1648 -0.0622 -0.0106 0.0611 0.0 0.5652 0.1281 0.0354 0.0062 -0.0365 -0.1359 -0.1359 -0.1359 | 0.7077 0.6785 0.6540 0.65287 0.0 0.4340 0.6046 0.6363 0.6481 0.6681 0.6689 0.6636 |
| 10 11 12 13 14 15 16 10 17 3 4 5 6 | 0.5010 0.6020 0.7020 0.9020 0.3020 1.0020 5106 0.0520 0.1500 0.2000 0.4900 0.5020 0.6000 0.9000 0.9000 | -0.4600 -0.4107 -0.2257 -0.2184 -0.1001 0.0029 0.1059 -0.4674 0.2247 0.1136 0.048 0.048 -0.0678 -0.0678 -0.0678 | 0. aC&7 7. 7921 0. 7628 0. 7242 0. 6855 0. 6464 0. a127 0. 4754 0. 6051 0. 6169 0. 6274 0. 6659 0. 6659 | 9.4600 0.5100 0.4000 0.4000 0.0000 1.0000 0.1500 0.1500 0.2000 0.5000 | -0.4225 -0.4275 -0.2218 -0.1026 -0.0053 0.0520 0.2722 0.2407 0.1364 0.0837 0.3412 -0.0809 -3.3577 0.0520 0.1252 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 0.6736 0.6737 0.6456 0.6059 | 0.4000 0.7033 0.9003 1.0003 0.0 0.0 0.0 0.1503 0.1503 0.2000 0.4000 0.5000 0.5000 0.5000 | -C.3207 -0.2163 -0.0558 -0.0558 -0.0253 -0.1463 -0.0 -0.0 -0.5098 -0.1991 -0.1154 -0.0632 -0.0215 -0.0904 -0.0618 -0.0099 -0.1259 | 0.7255 0.6640 0.6412 0.5980 0.0 0.5750 0.6053 0.6280 0.64576 0.6721 0.6721 0.6537 0.6052 | 0.7000 0.8000 0.9000 1.0000 0.0 0.0 0.0 0.1000 0.1500 0.1500 0.4000 0.5000 0.6000 | -0.1644 -0.0622 -0.0106 0.0611 0.0 0.5652 0.1281 0.0364 0.0062 0.0365 -0.1358 -0.1029 -0.0380 0.1002 | 0.7077 0.6785 0.6540 0.6540 0.6287 0.0 0.4340 0.6046 0.6363 0.6481 0.6589 0.6863 0.6636 |
| 10 11 12 13 14 15 16 17 8 | 0.5010 C.6020 0.7020 0.9020 0.9020 1.0030 SIDE 0.0500 0.1500 0.1500 0.2000 0.4000 0.5000 0.5000 0.5000 0.5000 0.6000 | -0.46.00 -0.41.01 -0.23.57 -0.2184 -0.1001 0.022 0.1054 0.4674 0.2247 0.1106 0.3948 0.0468 -0.0678 -0.0678 -0.0678 -0.0678 | 0. ace7 0. 1921 0. 7628 0. 7262 0. 6625 0. 6424 0. 6127 0. 4754 0. 6274 0. 6274 0. 6274 0. 6654 0. 6654 0. 6654 | 0.4600 0.5100 0.4000 0.4000 0.4000 1.0000 0.1000 0.1500 0.1500 0.2000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 | -0.4275 -0.3275 -0.2218 -0.1076 -0.0053 0.0970 0.2722 0.2407 0.1869 0.0869 -0.0809 -0.0809 -0.0527 -0.0609 | 0.7959 0.7638 0.7274 0.6862 0.6521 0.6176 0.5517 0.5632 0.6014 0.6235 0.6796 0.6797 0.6466 | C.6000 0.7033 C.8050 C.9003 1.6003 0.0 0.0 0.0 0.0 0.1500 C.1000 0.1500 C.2000 0.4000 C.5000 | -C.3207 -0.2163 -0.0458 0.0253 0.1463 0.0 0.5098 0.1991 0.1154 0.0632 0.0215 -0.0904 -0.0618 | 0.7255 0.6440 0.6412 0.5980 0.0 0.0 0.4576 0.5750 0.6053 0.6283 0.6428 0.6821 0.6721 | 0.7000 0.8000 0.9000 1.0000 0.0 0.0 0.1000 0.1500 0.1500 0.2500 0.2500 0.2500 0.5000 | -0.1648 -0.0622 -0.0106 0.0611 0.0 0.5652 0.1281 0.0354 0.0062 -0.0365 -0.1359 -0.1359 -0.1359 | 0.7077 0.6785 0.6540 0.65287 0.0 0.4340 0.6046 0.6363 0.6481 0.6681 0.6689 0.6636 |

Table 3.11: Pressure data (M = 0.65 $\alpha = 2^{\circ}$)

| | | SECTION | HS | | SECTION | 1 | | SECTION | 2 | | SECTION | 3 |
|---|--|--|--|--|--|--|--|--|--|--|--|--|
| NR | X/C | CP | ML | XIC | CP | ML | X/C | CP | ML | X/C | CP | ML |
| UPPER | SIDE | | | | | | | | | | | - |
| | | | | | | | | | | | | |
| 1 | 0.0 | 1.7174 | 0.0 | 0.0 | 1.1399 | 0.1809 | C.0 | 1.0566 | 0.2713 | 0.0 | 1.0001 | 0.3197 |
| 2 | 0.7250 | -).4793 | 1.1370 | 0.0250 | -0.7509 | 1.3054 | 0.0250 | -0.7334 | 1.2939 | 0.0250 | -0.7820 | 1.3266 |
| 3 | 0.0500 | -0.7119 | 1.2797 | 0.0500 | -0.8834 | 1.3797 | 0.0500 | -0.9669 | 1.4626 | 0.0500 | -1.0286 | 1.5131 |
| | 0.7750 | -0.4533 | 1.2470 | 0.0750 | -0.9813 | 1.3972 | 0.0750 | -1.0414 | 1.5240 | 0.0750 | -1.2079 | 1.6807 |
| 5 | 0.1370 | -0.5756 | 1.1749 | 0.1000 | -0.7652 | 1.3151 | 0.1000 | -0.9442 | 1.4448 | 0.1000 | -1.1156 | 1.5917 |
| | | -0.5092 | | 0.1500 | | | | | | 0.1500 | -0.9757 | 1.4727 |
| 6 | 0.1500 | | 1.1544 | | -0.6717 | 1.2570 | C.1500 | -0.7877 | 1.3305 | | | |
| 7 | 0.2000 | -0.5492 | 1.1781 | 0.2000 | -3.6991 | 1.2707 | 0.2000 | -0.7778 | 1.3237 | 0.2000 | -0.9304 | 1-4341 |
| 8 | 3. 3333 | -0.6307 | 1.2278 | 0.3220 | -0.7537 | 1.3374 | 0.3000 | -0.8306 | 1.4605 | C. 3000 | -0.9611 | 1.4550 |
| 9 | 0.4000 | -3.6473 | 1.2336 | 0.4300 | -0.7290 | 1.2909 | 0.4000 | -0.8049 | 1.3423 | 0.4000 | -3.8569 | 1.4097 |
| 10 | 3.5100 | -0.7315 | 1.3262 | 0.5000 | -0.9690 | 1.3874 | C.5000 | -0.9207 | 1.4267 | 0.5000 | -0.9869 | 1.4787 |
| | | | | | | | | | | | | |
| 11 | 3.6000 | -0.8378 | 1.3656 | 0.6707 | -0.9205 | 1.4265 | C.6000 | -1.0258 | 1.5107 | 0.6000 | -1.1329 | 1.6062 |
| 12 | 0.7000 | -3.9927 | 1.4757 | 9.7000 | -0. 7764 | 1.4702 | C. 7000 | -1.0309 | 1.5151 | 0.7000 | -0.8454 | 1.3739 |
| 13 | 0.4300 | -0.5290 | 1.1661 | 0.8000 | -0.3527 | 1.0655 | C.8000 | -0.2632 | 1.0169 | 0.8000 | -0.2155 | 0.9915 |
| 14 | 0.3700 | -0.1162 | 0. 1406 | 0. 7000 | -0.0609 | 0.9111 | 0.9000 | -0.0494 | 0.9052 | 0.9000 | -0.0435 | 0.5022 |
| 15 | 1.0000 | 0.2926 | 0.7228 | 1. 1711 | 2.2309 | 0.7630 | 1.0000 | 0.1645 | 0.7970 | 1.0000 | 0.1286 | 0.6151 |
| | | 3.5.50 | 0.1.74 | 1. //// | 1.6.237 | 0. 10 30 | 1.0000 | 0.1043 | 0.1410 | 1.0000 | 0.1500 | 0.0.51 |
| LOWER | \$105 | | | | | | | | | | | |
| 1 | 0.0 | 1.2174 | 0.0 | 0.0 | 1.1377 | 0.1909 | 0.0 | 1.0566 | 0.2713 | 0.0 | 1.0001 | 0.3197 |
| 2 | 9. 3533 | 3.3933 | 9.4864 | 0.0500 | 0.3012 | 0.7231 | 0.0500 | 0.2570 | 3.7504 | 0.0500 | 0.2376 | 0.7602 |
| 3 | 0.1000 | 0.3214 | 0.7179 | 0.1000 | 0.2586 | 0.7496 | C.1000 | 0.2270 | 0.7655 | 0.1000 | 0.1602 | 0.7992 |
| | 0.1500 | 3.2442 | 3.7569 | 0.1511 | 3.1799 | 0. 7893 | 0.1500 | 0.1423 | 0.8383 | 0.1500 | 0.0754 | 0.8359 |
| 4 | | | | | | | | | | | | |
| 5 | 0.2 100 | 0.1827 | 0.7878 | 0.2000 | 0.0951 | 0.9319 | 0.2000 | 0.0597 | 0.8499 | 0.2000 | 0.0027 | 0. 3746 |
| 6 | 0.4000 | -0.1157 | 7. 4393 | 0.4000 | -0.2101 | 0. 9886 | 0.4000 | -0.2404 | 1.0047 | 0.4000 | -0.2516 | 1.0107 |
| 7 | 0.5000 | -0.2389 | 0.9880 | 0.500) | -0.2251 | 0.9965 | 0.5000 | -0.2160 | 0.9918 | 0.5000 | -0.2053 | 0.9861 |
| | 0.6000 | -9. 1979 | C. 93Cl | 0.6000 | -0.0679 | 0.9260 | 0.6000 | -0.0756 | 0.9186 | 0.6000 | -0.0537 | 0.9014 |
| 9 | | | | 0.8000 | 0.1392 | 0. 8097 | | 0.1713 | 0.7935 | 0.8000 | 0.1895 | 0.7844 |
| | 0.9000 | 0. 361 | 0.8113 | | | | 0.8000 | | | | | |
| 10 | 0.9000 | 0.1693 | 0.7946 | 0.9000 | 0.1854 | 0.7860 | 0.9000 | 0.2089 | 0.7747 | 0.9000 | 0.1983 | 0.7800 |
| 11 | 1.0000 | 0.292 | 0.7328 | 1.0000 | 0.2309 | 0. 76 36 | 1.0000 | 0.1645 | 0.7970 | 1.0000 | 0.1286 | 0.0151 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | SECTION | 1 - | | SECTION | 5 | | SECTION | 6 | | SECTION | 1 |
| wo | *** | SECTION | | */5 | SECTION | 5 | */5 | SECTION | | *** | SECTION | |
| NR . | *// | SECTION | , mi | */[| SECTION | 5 "(| */0 | SECTION | ML ML | ×/t | SECTION | 7 ML |
| UPPER | SIDE | Co | *1 | | Cp | " (| | Cr | ML | | CP | ME |
| UPPER | 3.0 | 7.9694 | 0.3435 | 0.0 | 3.8430 | 0.4328 | 0.0 | U.9997 | 9.3200 | 0.0 | CP 0.9756 | ML 0.3358 |
| UPPER | SIDE | Co | *1 | | Cp | " (| | Cr | ML | | CP | ME |
| UPPER 1 2 | \$19E 0.0 0.0259 | 7.9694 -0.8209 | 0.3435 | 0.0 | 3.9439 -3.6564 | 0.4328 1.2696 | 0.0 | 0.9997 -1.2194 | 9.3200 1.6928 | 0.0 | 0.9756 -1.1220 | 0.3358 1.5959 |
| UPPER 1 2 3 | 519E 3.0 9.7259 0.7519 | 7.9694 -0.8299 -1.1489 | 0.3436 1.3536 1.5212 | 0.0251 | 3.9439 -3.6564 -1.1832 | 1.4328 1.2696 1.6524 | 0.0 0.0500 0.1000 | 0.9997 -1.2194 -1.3693 | 9.3200 1.6928 1.8725 | 0.0 | 0.9756 -1.1220 -1.3809 | 0.3358 1.5959 1.8856 |
| UPPER 1 2 3 | \$196 0.0 0.7259 0.7510 0.751 | 7.9694 -0.8293 -1.1485 -1.2147 | 0.3436 1.3536 1.6212 1.6278 | 0.0 0.0251 0.0501 0.0501 | 3.9439 -3.6564 -1.1892 -1.735 | 1.4328 1.2696 1.6524 1.7527 | 0.0 0.0500 0.1000 0.1500 | 0.9997 -1.2194 -1.3265 | 9.3200 1.6928 1.8725 1.8144 | 0.0 0.0500 0.1000 0.1500 | 0.9756 -1.1223 -1.3909 -1.3702 | 0.3358 1.5959 1.8356 1.8738 |
| UPPER 1 2 3 4 5 | 5196 3.0 9.7259 0.7539 9.7753 | 7.9694 -0.8207 -1.1685 -1.2147 -1.2358 | 0.3435 1.3536 1.6212 1.6278 1.7105 | 0.0 0.0251 0.0501 0.0501 0.1501 | 3.9433 -3.6564 -1.1832 -1.735 -1.3977 | 1.4328 1.2696 1.6524 1.7527 1.7031 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 | 9.3200 1.6928 1.8725 1.8144 1.8946 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.9756 -1.1223 -1.3809 -1.3702 -1.2523 | 0.3358 1.5959 1.8356 1.8738 1.7742 |
| UPPER 1 2 3 4 5 | 5196 3.0 9.7259 0.7539 0.753 0.1753 | 7.9694 -0.8209 -1.1686 -1.7147 -1.2358 -1.1419 | 0.3436 1.3536 1.6212 1.6278 1.7105 1.6540 | 0.0 0.0250 0.0500 0.0500 0.1500 | 3.9439 -3.6-64 -1.1932 -1.7735 -1.3077 -1.2026 | 1.4328 1.2696 1.6524 1.7527 1.7031 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.3151 | 9.3200 1.6928 1.8725 1.8144 1.89.6 1.8922 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 | 0.9756 -1.1220 -1.3909 -1.3702 -1.2920 | 0.3358 1.5959 1.8856 1.8738 1.7742 1.6937 |
| UPPER 1 2 3 4 5 | 5196 3.0 9.7259 0.7539 9.7753 | 7.9694 -0.8207 -1.1685 -1.2147 -1.2358 | 0.3435 1.3536 1.6212 1.6278 1.7105 | 0.0 0.0251 0.0501 0.0501 0.1501 | 3.9433 -3.6564 -1.1832 -1.735 -1.3977 | 1.4328 1.2696 1.6524 1.7527 1.7031 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 | 9.3200 1.6928 1.8725 1.8144 1.89.6 1.8922 | 0.0 0.0500 0.1000 0.1500 0.2000 | 0.9756 -1.1223 -1.3809 -1.3702 -1.2523 | 0.3358 1.5959 1.8356 1.8738 1.7742 |
| UPPER 1 2 3 4 5 | 5196 3.0 9.7259 0.7539 0.753 0.1539 0.1539 0.2009 | 7.9694 -0.8209 -1.1686 -1.7147 -1.2358 -1.1419 -1.0772 | 0.3436 1.3536 1.6212 1.5478 1.7105 1.6540 1.5551 | 0.0 0.0250 0.0250 0.0500 0.1500 0.1500 0.2000 | 0.9433 -0.6664 -1.1802 -1.2735 -1.3077 -1.2026 -1.2497 | 0.4328 1.2696 1.6524 1.7527 1.7031 1.7631 1.7259 | 0.0 0.0500 0.1000 0.1500 0.2000 0.1000 0.4000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.3151 -1.2010 | 9.3200 1.6928 1.8725 1.8144 1.8936 1.8922 1.6735 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 | 0.9756 -1.1220 -1.3909 -1.3702 -1.2520 -1.2202 -1.1048 | 0.3358 1.5959 1.8856 1.8738 1.7742 1.6937 |
| UPPER 1 2 3 4 5 6 7 | \$196 0.0 0.7559 0.7559 0.7559 0.1559 0.1599 0.2099 0.3099 | 7.9694 -0.8209 -1.1486 -1.2158 -1.1419 -1.0772 -1.0670 | 0.3436 1.3536 1.5212 1.5278 1.7105 1.6540 1.5551 1.5461 | 0.0 0.0251 0.0251 0.051) 0.1501 0.1501 0.2009 0.3023 | 3.9433 -3.664 -1.1832 -1.735 -1.3077 -1.2026 -1.2497 -1.1854 | 1.4328 1.2696 1.6524 1.7527 1.7731 1.7631 1.7259 1.6576 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 | ML 9.3200 1.6928 1.8725 1.8164 1.8936 1.8922 1.6736 1.6994 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.9756 -1.1223 -1.3702 -1.2523 -1.2523 -1.2202 -1.1048 -0.6506 | 0.3358 1.5959 1.8356 1.8738 1.7742 1.6937 1.5801 1.2403 |
| UPPER 1 2 3 4 5 6 7 8 | 5196 3.0 9.7559 0.7519 0.7519 0.1519 0.2009 0.3009 0.4000 | 7.9694 -0.8209 -1.1486 -1.7147 -1.2358 -1.1419 -1.07772 -1.0670 -1.0899 | 0.3436 1.3536 1.6212 1.6778 1.7105 1.6540 1.5551 1.5461 1.5065 | 0.0 0.0250 0.0250 0.0500 0.1500 0.1500 0.2000 0.3000 0.3000 | 0.9430 -1.6-64 -1.1802 -1.775 -1.3077 -1.2026 -1.249 -1.1854 -1.2047 | 7.4 328 1.2696 1.6524 1.7527 1.7031 1.7631 1.7259 1.6576 1.6774 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 | ML 0.3200 1.6928 1.8725 1.8144 1.80.6 1.8022 1.6735 1.6964 1.3434 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 0.9756 -1.1220 -1.3809 -1.3702 -1.2520 -1.2003 -1.1048 -0.6506 | 0.3358 1.5959 1.8856 1.8738 1.7742 1.6937 1.5801 1.2403 1.1357 |
| UPPER 1 2 3 4 5 6 7 8 9 | \$196 3.0 9.7259 0.7519 0.7751 0.1599 0.2099 0.2099 0.3093 0.4000 0.5990 | 7.9694 -0.8203 -1.1486 -1.2158 -1.1419 -1.0772 -1.0670 -1.1989 | 0.3435 1.3536 1.5212 1.5278 1.7105 1.6540 1.5551 1.5461 1.5005 1.5237 | 0.0 0.0251 0.0251 0.1501 0.1061 0.1500 0.3077 0.4001 0.5000 | 3.9439 -3.6564 -1.1892 -1.7735 -1.3077 -1.2026 -1.2499 -1.1895 -1.2047 -1.1994 | 1.4328 1.2696 1.6524 1.7527 1.7031 1.7631 1.7259 1.6576 1.6774 1.6779 | 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 | ML 2.3200 1.6928 1.8725 1.8164 1.8022 1.6735 1.6994 1.3434 1.1346 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 0.9756 -1.1223 -1.3809 -1.3702 -1.2923 -1.203 -1.1048 -0.6506 -0.4772 -0.3323 | ML 0.3358 1.5959 1.8356 1.6738 1.7742 1.6937 1.5801 1.2403 1.1357 1.0543 |
| UPPER 1 2 3 4 5 6 7 7 8 9 | \$196 3.0 9.7259 9.7559 9.7759 9.1599 9.2099 0.3099 0.4000 0.5790 9.6919 | 7.9694 -0.8209 -1.1480 -1.7147 -1.2159 -1.1419 -1.0772 -1.0879 -1.1288 -1.2198 | 0.3436 1.3536 1.6212 1.6212 1.6278 1.7105 1.6540 1.5551 1.5461 1.5005 1.5037 | 0.0 0.0251 0.0251 0.1501 0.1501 0.1501 0.2000 0.3011 0.5000 0.5000 | 0.84J9 -1.6564 -1.1892 -1.7135 -1.3077 -1.226 -1.249 -1.1954 -1.2047 -1.1944 -1.1429 | 1.4128 1.2696 1.6524 1.7527 1.7731 1.7731 1.7259 1.6576 1.6774 1.6709 1.6158 | 0.0 0.0500 0.1000 0.2000 0.2000 0.4000 0.5000 0.6000 0.7000 0.8000 | 0.9997 -1.2194 -1.3293 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 -0.2818 | ML 0.3200 1.6928 1.8725 1.8144 1.80.6 1.8022 1.6735 1.6964 1.3434 | 0.0 0.0500 0.1000 0.1100 0.1000 0.4000 0.5000 0.7000 0.8000 | CP 0.9756 -1.1220 -1.3809 -1.3702 -1.2202 -1.202 -1.1048 -0.6506 -0.4712 -0.3323 -0.2035 | ML 0.3358 1.5659 1.8356 1.8738 1.7742 1.6937 1.5891 1.2403 1.1357 1.0543 0.9852 |
| UPPER 1 2 3 4 5 6 7 8 9 | \$196 3.0 9.7259 0.7519 0.7751 0.1599 0.2099 0.2099 0.3093 0.4000 0.5990 | 7.9694 -0.8203 -1.1486 -1.2158 -1.1419 -1.0772 -1.0670 -1.1989 | 0.3435 1.3536 1.5212 1.5278 1.7105 1.6540 1.5551 1.5461 1.5005 1.5237 | 0.0 0.0251 0.0251 0.1501 0.1061 0.1500 0.3077 0.4001 0.5000 | 3.9439 -3.6564 -1.1892 -1.7735 -1.3077 -1.2026 -1.2499 -1.1895 -1.2047 -1.1994 | 1.4328 1.2696 1.6524 1.7527 1.7031 1.7631 1.7259 1.6576 1.6774 1.6779 | 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 | ML 2.3200 1.6928 1.8725 1.8164 1.8022 1.6735 1.6994 1.3434 1.1346 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 0.9756 -1.1223 -1.3809 -1.3702 -1.2923 -1.203 -1.1048 -0.6506 -0.4772 -0.3323 | ML 0.3358 1.5959 1.8356 1.6738 1.7742 1.6937 1.5801 1.2403 1.1357 1.0543 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 | \$196 3.0 9.7259 9.7559 9.7759 9.1599 9.2099 9.3099 0.4000 0.5999 0.6019 9.7009 | 7.9694 -0.8207 -1.1680 -1.7147 -1.2158 -1.1419 -1.0772 -1.0859 -1.1089 -1.2198 -0.6054 | 0.3436 1.3536 1.6212 1.6212 1.6778 1.7105 1.6540 1.5551 1.5461 1.565 1.5037 1.6337 1.6333 | 0.0 0.0250 0.0250 0.1503 0.1503 0.1503 0.2009 0.3023 0.5000 0.6003 0.7009 | 0.9439 -0.6569 -1.1802 -1.7735 -1.3017 -1.2026 -1.249 -1.249 -1.194 -1.194 -1.194 -1.194 | 7.4 12 H 1.2696 1.6524 1.7527 1.7031 1.7031 1.7031 1.7631 1.6576 1.6774 1.6709 1.6158 1.4295 | 9.0 0.0500 0.1000 0.1500 0.2900 0.4000 0.5020 0.6000 0.7000 0.8000 0.9000 | 0.9997 -1.2194 -1.3293 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 -0.2818 -0.1055 | 9.3200 1.6928 1.8725 1.8144 1.8046 1.8022 1.6735 1.6744 1.3444 1.1346 1.0269 0.9340 | 0.0 0.0500 0.1000 0.1100 0.2000 0.4000 0.5000 0.4000 0.7000 0.8006 0.9000 | CP 0.9756 -1.1220 -1.3509 -1.3702 -1.200 -1.200 -1.1048 -0.6506 -0.4772 -0.3323 -0.2035 -0.1103 | ML 0.3358 1.5959 1.8356 1.8738 1.7742 1.6937 1.5891 1.2403 1.1357 1.0543 0.9852 0.9365 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | \$196 3.0 9.7259 9.7559 9.7559 9.1599 9.2599 9.2599 9.4000 9.5999 9.6919 9.7309 9.8929 | 7.9694 -0.8203 -1.1489 -1.147 -1.2158 -1.1419 -1.0772 -1.0879 -1.1288 -1.2198 -0.6354 | 0.3436 1.5316 1.5212 1.6278 1.7105 1.6551 1.5461 1.5565 1.537 1.6337 1.633 1.2122 | 0.0 0.0251 0.0251 0.1501 0.1501 0.1501 0.2000 0.3017 0.5000 0.6001 0.7000 0.8721 | 0.8433 -0.6564 -1.1802 -1.7735 -1.3077 -1.2027 -1.2047 -1.1954 -1.1954 -1.1429 -0.7762 -0.2064 | 0.4328 1.2696 1.6524 1.7527 1.7031 1.7031 1.7259 1.6576 1.6774 1.6709 1.6158 1.3295 0.9867 | 9.0 0.0500 0.1000 0.1500 0.2000 0.7000 0.5020 0.6000 0.7000 0.9000 1.0000 | 0.9997 -1.2194 -1.3693 -1.3265 -1.3170 -1.2246 -0.8063 -0.4752 -0.2818 -9.1055 0.3708 | 9.3200 1.6928 1.8725 1.8124 1.8936 1.6936 1.6934 1.1346 1.0269 0.9340 0.9340 | 0.0 0.0500 0.1500 0.1500 0.1500 0.4000 0.5000 0.4000 0.8000 0.9000 | CP 0.9756 -1.1220 -1.3809 -1.3702 -1.2202 -1.2202 -1.1048 -0.6506 -0.4772 -0.3323 -0.2035 -0.1103 -0.1105 -0.1105 | ML 0.3358 1.5959 1.8356 1.6738 1.7742 1.5901 1.2403 1.1357 1.0543 0.9852 0.9365 0.8897 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 | \$196 0.0 9.7259 0.7559 0.7559 0.1599 0.1599 0.2099 0.3099 0.4000 0.5990 0.6919 0.7009 0.8790 0.8790 | 7.9694 -0.8209 -1.1680 -1.1147 -1.2358 -1.1919 -1.0879 -1.1088 -1.2198 -0.6154 -0.2278 | 0.3436 1.3536 1.6212 1.6212 1.6218 1.7135 1.6550 1.5551 1.5461 1.5465 1.5037 1.6233 1.2122 1.0733 0.8626 | 0.0 0.0251 0.0251 0.151 0.1061 0.150 0.2000 0.3077 0.5000 0.5000 0.6017 0.7009 0.8771 0.9711) | 1.94JJ -0.6=64 -1.1802 -1.2735 -1.3077 -1.2027 -1.2047 -1.2047 -1.1954 -1.1429 -0.7062 -0.2064 -0.5664 | 8.4328 1.2696 1.6524 1.7527 1.7731 1.7731 1.7259 1.6774 1.6774 1.6709 1.6158 1.3295 0.8514 | 9.0 0.05n0 0.1000 0.1500 0.2900 0.4000 0.5020 0.6000 0.7000 0.8000 0.9000 1.0000 | 0.9997 -1.2194 -1.3(93 -1.3(25 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 -0.2818 -0.1055 0.3708 | 9.3200 1.6928 1.8725 1.8124 1.8036 1.8022 1.6735 1.6924 1.3434 1.1346 1.0269 0.9340 0.9340 | 0.0 0.0500 0.1000 0.1100 0.1100 0.2000 0.4000 0.5000 0.7000 0.8000 0.9000 0.9000 | CP 0.9756 -1.1220 -1.3809 -1.3762 -1.2920 -1.1048 -0.6506 -0.4772 -0.3373 -0.2035 -0.1103 -0.1103 -0.1103 | ML 0.3358 1.5959 1.8356 1.8738 1.7742 1.6937 1.5891 1.2403 1.13543 0.9852 0.9852 0.9365 0.98697 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 | \$196 3.0 9.7259 0.7559 9.7759 9.1599 0.2009 0.3099 0.5990 0.5990 0.6919 0.7009 0.8990 0.8990 0.9900 1.9000 | 7.9694 -0.8203 -1.1489 -1.147 -1.2158 -1.1419 -1.0772 -1.0879 -1.1288 -1.2198 -0.6354 | 0.3436 1.5316 1.5212 1.6278 1.7105 1.6551 1.5461 1.5565 1.537 1.6337 1.633 1.2122 | 0.0 0.0251 0.0251 0.1501 0.1501 0.1501 0.2000 0.3017 0.5000 0.6001 0.7000 0.8721 | 0.8433 -0.6564 -1.1802 -1.7735 -1.3077 -1.2027 -1.2047 -1.1954 -1.1954 -1.1429 -0.7762 -0.2064 | 0.4328 1.2696 1.6524 1.7527 1.7031 1.7031 1.7259 1.6576 1.6774 1.6709 1.6158 1.3295 0.9867 | 9.0 0.0500 0.1000 0.1500 0.2000 0.7000 0.5020 0.6000 0.7000 0.9000 1.0000 | 0.9997 -1.2194 -1.3(93 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 -0.2818 -9.1055 0.3708 | 9.3200 1.6928 1.8725 1.8124 1.8936 1.6936 1.6934 1.1346 1.0269 0.9340 0.9340 | 0.0 0.0500 0.1500 0.1500 0.1500 0.4000 0.5000 0.4000 0.8000 0.9000 | CP 0.9756 -1.1220 -1.3809 -1.3702 -1.2202 -1.2202 -1.1048 -0.6506 -0.4772 -0.3323 -0.2035 -0.1103 -0.1105 -0.1105 | ML 0.3358 1.5959 1.8356 1.6738 1.7742 1.5901 1.2403 1.1357 1.0543 0.9852 0.9365 0.8897 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 | \$19E 3.0 1.7259 0.7519 0.7519 0.1579 0.1579 0.2099 0.4000 0.5790 0.6719 0.7109 0.8770 0.8770 1.7090 1.7090 1.7090 51DE | 7.9694 -0.8203 -1.1680 -1.7147 -1.2158 -1.1419 -1.0772 -1.0869 -1.1089 -1.108 -0.6154 -0.2278 -0.6364 -0.2278 | 0.3436 1.3536 1.5336 1.6212 1.6978 1.7105 1.6551 1.5551 1.5461 1.565 1.5037 1.6031 1.2122 1.0033 0.8626 0.7256 | 0.0 0.0251 0.0251 0.1501 0.1501 0.1501 0.2000 0.3000 0.4001 0.5000 0.6001 0.7000 0.8001 0.9001 0.9001 | 0.94J9 -1.6564 -1.1902 -1.735 -1.3077 -1.249 -1.249 -1.194 -1.194 -1.194 -1.1429 -0.2064 0.3192 | 3.4128 1.2624 1.6524 1.7527 1.7731 1.7731 1.7731 1.7759 1.6776 1.6776 1.6158 1.3295 0.9867 0.8514 0.7190 | 0.0 0.0500 0.1000 0.1500 0.2000 0.7000 0.5000 0.7000 0.8000 0.8000 0.0000 0.0000 | 0.9997 -1.2194 -1.3(93 -1.3265 -1.3170 -1.3151 -1.2010 -0.8063 -0.4752 -0.2818 -0.1055 0.0708 | 9.3200 1.6928 1.8725 1.8124 1.8096 1.8092 1.6735 1.6994 1.3434 1.1346 1.0269 0.9340 0.9442 | 0.0 0.0500 0.1000 0.1100 0.2000 0.4000 0.5000 0.4000 0.7000 0.8000 0.9000 0.9000 | 0.9756 -1.1220 -1.3702 -1.3702 -1.2520 -1.1048 -0.6506 -0.4712 -0.3371 -0.2035 -0.1103 -0.1103 | ML 0.3358 1.5959 1.8856 1.8738 1.7742 1.6937 1.5801 1.2403 1.1357 1.0543 0.9852 0.9365 0.9867 0.0 |
| UPPER 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 | \$196 3.0 9.7259 0.7559 9.7759 9.1599 0.2009 0.3099 0.5990 0.5990 0.6919 0.7009 0.8990 0.8990 0.9900 1.9000 | 7.9694 -0.8209 -1.1680 -1.1147 -1.2358 -1.1919 -1.0879 -1.1088 -1.2198 -0.6154 -0.2278 | 0.3436 1.3536 1.6212 1.6212 1.6218 1.7135 1.6550 1.5551 1.5461 1.5465 1.5037 1.6233 1.2122 1.0733 0.8626 | 0.0 0.0251 0.0251 0.151 0.1061 0.150 0.2000 0.3077 0.5000 0.5000 0.6017 0.7009 0.8771 0.9711) | 1.94JJ -0.6=64 -1.1802 -1.2735 -1.3077 -1.2027 -1.2047 -1.2047 -1.1954 -1.1429 -0.7062 -0.2064 -0.5664 | 8.4328 1.2696 1.6524 1.7527 1.7731 1.7731 1.7259 1.6774 1.6774 1.6709 1.6158 1.3295 0.8514 | 9.0 0.05n0 0.1000 0.1500 0.2900 0.4000 0.5020 0.6000 0.7000 0.8000 0.9000 1.0000 | 0.9997 -1.2194 -1.3(93 -1.3(25 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 -0.2818 -0.1055 0.3708 | 9.3200 1.6928 1.8725 1.8124 1.8036 1.8022 1.6735 1.6924 1.3434 1.1346 1.0269 0.9340 0.9340 | 0.0 0.0500 0.1000 0.1100 0.1100 0.2000 0.4000 0.5000 0.7000 0.8000 0.9000 0.9000 | CP 0.9756 -1.1220 -1.3809 -1.3762 -1.2920 -1.1048 -0.6506 -0.4772 -0.3373 -0.2035 -0.1103 -0.1103 -0.1103 | ML 0.3358 1.5959 1.8356 1.8738 1.7742 1.6937 1.5891 1.2403 1.13543 0.9852 0.9852 0.9365 0.98697 |
| UPPER 1 2 3 4 5 6 7 7 6 9 10 11 12 13 14 15 LOWER 1 | \$196 0.0 0.7259 0.7519 0.7551 0.1579 0.2099 0.3079 0.4000 0.5010 0.6019 0.7109 0.8090 0.8090 0.8090 0.8090 0.8090 0.8090 | 7.9694 -0.8209 -1.1680 -1.7147 -1.2158 -1.1419 -1.0879 -1.10879 -1.1089 -1.2198 -0.6154 -0.2278 -0.442 -0.3062 | 0.3436 1.3536 1.6212 1.6212 1.6278 1.7105 1.6540 1.5551 1.5461 1.5065 1.6337 1.6237 1.6231 1.2122 1.0933 0.8626 0.7256 | 0.0 0.0250 0.0250 0.1500 0.1500 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.7000 0.8000 0.7000 0.8000 0.7000 0.9000 | 3.8433 -3.6564 -1.1892 -1.2735 -1.3977 -1.2264 -1.2469 -1.247 -1.194 -1.1629 -0.7762 -0.2064 0.3192 | 1.4128 1.2696 1.6524 1.7527 1.7031 1.7031 1.7739 1.6776 1.6770 1.6770 1.6158 1.3295 0.7867 0.78514 0.7190 | 0.0 0.0500 0.1000 0.1500 0.2900 0.3000 0.5020 0.6000 0.7000 0.9000 1.0000 0.0 | 0.9997 -1.2194 -1.3265 -1.3170 -1.3151 -1.2010 -1.2246 -0.8063 -0.4752 -0.2018 -0.1055 0.0708 0.0 | 9.3200 1.6928 1.8725 1.8164 1.8056 1.6936 1.6934 1.344 1.344 1.1346 1.0269 0.9340 0.9442 0.0 | 0.0 0.0500 0.1000 0.1000 0.2000 0.3000 0.5000 0.5000 0.7000 0.8000 0.9000 1.2000 0.0 | 0.9756 -1.1220 -1.3702 -1.3702 -1.2520 -1.2202 -1.1048 -0.6506 -0.4772 -0.3323 -0.2035 -0.1103 -0.00 | ML 0.3358 1.9356 1.8356 1.8738 1.7742 1.6937 1.5801 1.2403 1.1357 1.0543 0.9365 0.9365 0.9365 0.9365 0.03358 |
| UPPER 1 2 3 4 5 6 7 7 6 9 10 11 12 13 14 15 COWER 1 2 | \$196 0.07 0.7259 0.7517 0.7557 0.1579 0.2090 0.3079 0.4000 0.5710 0.6010 0.7109 0.8710 0.000 0.000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0 | 7.9694 -0.8209 -1.1680 -1.7147 -1.2158 -1.11419 -1.0772 -1.0869 -1.1388 -1.1388 -1.2198 -0.6154 -0.2278 -0.456 -0.2278 -0.9596 -0.9594 | 0.3436 1.3536 1.5212 1.6212 1.6278 1.7105 1.6551 1.5561 1.5461 1.5461 1.5461 1.5462 1.6237 1. | 0.0 0.0250 0.0250 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.6000 0.8000 0.8000 0.9000 | 0.94JJ -1.6564 -1.1902 -1.735 -1.3077 -1.249 -1.249 -1.194 -1.194 -1.194 -1.194 -1.194 -1.194 -1.194 -1.194 -1.194 -1.194 -1.1429 -0.2064 0.3564 0.3192 | 3.4128 1.26524 1.5524 1.7527 1.7731 1.7731 1.7731 1.7759 1.6774 1.6774 1.6776 1.6158 1.4295 0.9867 0.9814 0.7190 | 0.0 0.0500 0.1000 0.1500 0.2900 0.4000 0.5020 0.6000 0.7000 0.8000 0.9000 1.0000 0.0 | 0.9997 -1.2194 -1.3(93 -1.3265 -1.3151 -1.2010 -1.2246 -0.8003 -0.4752 -0.2818 -0.1055 0.0708 0.0 | 9.3200 1.6928 1.8725 1.8725 1.8124 1.8936 1.8932 1.6735 1.6694 1.1369 0.9340 0.9340 0.9442 0.0 | 0.0 0.0500 0.1500 0.1150 0.2000 0.3000 0.4000 0.5000 0.7000 0.8006 0.9000 0.0 | 0.9756 -1.1220 -1.3702 -1.3702 -1.200 -1.200 -1.1048 -0.6506 -0.6772 -0.3035 -0.1103 -0.1103 -0.00 0.0 | ML 0.3358 1.9356 1.8356 1.8736 1.7742 1.6937 1.2403 1.1357 1.09852 0.9852 0.9852 0.9852 0.9365 0.8897 0.0 |
| UPPER 1 2 3 4 5 5 6 7 7 8 9 10 11 12 13 14 15 LOWER 1 2 3 | \$196 0.0 0.7259 0.7519 0.753 0.1070 0.1572 0.2073 0.4030 0.5710 0.6710 0.6710 0.6710 0.6710 0.6710 0.6710 0.6710 0.6710 0.6710 | 7.9694 -0.8209 -1.1680 -1.7147 -1.2158 -1.1419 -1.2772 -1.0679 -1.1108 -1.2198 -0.6154 -0.6154 -0.6154 -0.6 | 0.3436 1.3536 1.6212 1.6212 1.6212 1.7105 1.6540 1.75401 1.5401 1.5401 1.5401 1.5403 1.2122 1.0733 0.8626 0.7256 | 0.0 0.0251 0.0251 0.1501 0.1501 0.1501 0.2001 0.3001 0.5000 0.5000 0.6001 0.9001 0.0001 0.1501 | 3,84,9 -3,6564 -1,1892 -1,7135 -1,3977 -1,2924 -1,294 -1,1934 -1,1429 -1,1429 -0,7962 -0,2064 0,3192 0,8400 0,2344 0,1167 | 1.4128 1.2696 1.6524 1.7527 1.7731 1.7731 1.7731 1.7739 1.6576 1.6774 1.6709 1.6158 1.4295 0.9867 0.9814 0.7190 | 0.0 0.0500 0.1500 0.1500 0.2900 0.4900 0.5000 0.6000 0.7000 0.9000 1.0000 0.0 | 0.9997 -1.2194 -1.3293 -1.3265 -1.3170 -1.3151 -1.2246 -0.8063 -0.4752 -0.2818 -0.1055 0.0708 0.0 | 91.00 0.3200 1.6928 1.8125 1.8125 1.8025 1.6745 1.6924 1.3436 1.0269 0.9340 | 0.0 0.0500 0.1000 0.1100 0.1100 0.2000 0.5000 0.5000 0.7000 0.8000 0.8000 0.9000 0.000 | 0.9756 -1.1220 -1.3769 -1.3769 -1.2502 -1.2502 -1.1048 -0.6506 -0.4772 -0.3323 -0.2035 -0.1163 -0.1163 -0.0035 -0.0035 -0.0035 -0.0035 -0.0056 | ML 0.3358 1.6356 1.836 1.836 1.7742 1.6937 1.5901 1.2403 0.9852 0.9365 0.00 0.3358 0.0088 |
| UPPER 1 2 3 4 5 6 7 7 6 9 10 11 12 11 14 15 EWER 1 2 3 4 | \$19E 0.0 0.7259 0.7559 0.7559 0.1599 0.1599 0.2099 0.3099 0.4000 0.5910 0.6919 0.4990 0.6919 0.4990 0.6919 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 | 7.9694 -9.8293 -1.1689 -1.7159 -1.7159 -1.7172 -1.0679 -1.1989 -1.1989 -1.198 -0.6154 0.9594 0.9594 0.9596 0.9637 | 0.3436 1-3536 1-3536 1-6212 1-6278 1-7135 1-6540 1-5551 1-5461 1-565 1-5237 1-6237 1-6233 1-7256 0.7256 0.7256 | 0.0 0.0251 0.0251 0.0251 0.0251 0.1501 0.1501 0.2000 0.3022 0.5000 0.5000 0.7000 0.7000 0.7000 0.7000 0.7000 0.1500 0.1500 | C9 3-84-39 3-6-6-6-6 1-1-8-73 1-1-8-73 1-1-8-73 1-1-8-74 1-1-8-74 1-1-8-74 1-1-9-74 1-1-9-74 1-1-9-74 1-1-9-9 1-1-9 | ML 1-2696 1-2696 1-6524 1-7527 1-7031 1-7259 1-6576 1-6158 1-6158 1-6158 1-6158 1-6158 1-7496 1-7496 1-7496 1-7496 1-7496 1-7496 1-7496 1-7498 1- | 0.0 0.0500 0.1500 0.1500 0.2900 0.4900 0.5020 0.7900 0.4900 0.9000 0.900 0.900 | 0.9097 -1.2194 -1.3(93 -1.3(23 -1.3170 -1.3151 -1.2010 -1.2246 -0.8003 -0.4752 -0.2618 -0.1055 0.0708 0.0 0.0 0.0 0.0690 -0.0690 | 91200 1.6928 1.8725 1.8125 1.8164 1.8022 1.6735 1.693 1.349 1.349 1.349 0.9340 0.9442 0.0 0.7494 0.8451 0.8851 | 0.0 0.0500 0.1000 0.1100 0.2000 0.4000 0.5000 0.6000 0.9000 0.9000 0.0 0.0 | 0.9756 -1.1202 -1.3809 -1.3762 -1.202 -1.202 -1.203 -0.5506 -0.4772 -0.3323 -0.1103 -0.1103 -0.00 0.00 | ML 0.3358 1.5358 1.6356 1.8356 1.8736 1.7742 1.5903 1.1357 1.0543 0.9852 0.9356 0.3358 0.000 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 COWER 1 2 3 4 5 | \$196 0.0259 0.7559 0.7559 0.7559 0.1559 0.2099 0.3099 0.4000 0.5090 0.6010 0.7090 0.80 | 1.0894 -0.8294 -1.1486 -1.147 -1.2147 -1.2158 -1.1419 -1.3772 -1.3679 -1.1788 -1.2198 -1.2198 -0.278 0.3062 0.9594 0.2703 0.6037 0.6037 | 0.34.36 1.3536 1.3536 1.6212 1.6272 1.7105 1.5551 1.5565 1.5565 1.5637 1.6231 1.2122 1.0733 0.8626 0.7256 0.3436 0.7256 | 0.0 0.0251 0.0251 0.1561 0.1561 0.1561 0.2009 0.3092 0.4001 0.6001 0.7009 0.4901 0.9001 0.9001 0.1003 | 0.9423 -1.6264 -1.1802 -1.7735 -1.3027 -1.2024 -1.2044 -1.1429 -0.2766 -0.2064 -0.3192 -0.8400 -0.2344 -0.1167 -0.354 -0.3192 | #L 1.209 1.5524 1.7527 1.7731 1.7731 1.7739 1.6776 1.6776 1.6779 1.6158 1.6779 1.6158 0.9814 0.7190 0.4129 0.4829 0.4829 0.4829 | 0.0 0.0500 0.1500 0.1500 0.200 0.4000 0.5000 0.6000 0.7000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 | 0.997 -1.2194 -1.3265 -1.3151 -1.2066 -0.8052 -0.4752 -0.2818 -0.1055 0.0 0.0 0.0 0.0 0.0 0.060 -0.0060 -0.0060 | ML 9.3200 1.6928 1.8725 1.8124 1.8026 1.6736 1.6736 1.0269 0.3436 1.1146 0.0340 0.7194 0.000 0.7194 0.7 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.7000 0.9000 0.9000 0.0 0.0 0.0 0.0 | 0.9756 -1.1250 -1.3809 -1.3702 -1.2202 -1.2202 -1.203 -1.0408 -0.6506 -0.7772 -0.2035 -0.1103 -0.000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | ML 0.3354 1.5959 1.6956 1.6736 1.7742 1.6931 1.2403 1.1357 0.9852 0.9852 0.9355 0.6987 0.0 0.3358 0.4686 0.4393 |
| UPPER 1 2 3 4 5 6 7 7 6 9 10 11 12 11 14 15 EWER 1 2 3 4 | \$19E 0.0 0.7259 0.7559 0.7559 0.1599 0.1599 0.2099 0.3099 0.4000 0.5910 0.6919 0.4990 0.6919 0.4990 0.6919 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 0.4990 | 7.9694 -9.8293 -1.1689 -1.7159 -1.7159 -1.7172 -1.0679 -1.1989 -1.1989 -1.198 -0.6154 0.9594 0.9594 0.9596 0.9637 | 0.3436 1-3536 1-3536 1-6212 1-6278 1-7135 1-6540 1-5551 1-5461 1-565 1-5237 1-6237 1-6233 1-7256 0.7256 0.7256 | 0.0 0.0251 0.0251 0.0251 0.0251 0.1501 0.1501 0.2000 0.3022 0.5000 0.5000 0.7000 0.7000 0.7000 0.7000 0.7000 0.1500 0.1500 | C9 3-84-39 3-6-6-6-6 1-1-8-73 1-1-8-73 1-1-8-73 1-1-8-74 | ML 1-2696 1-2696 1-6524 1-7527 1-7031 1-7259 1-6576 1-6158 1-6158 1-6158 1-6158 1-6158 1-7496 1-7496 1-7496 1-7496 1-7496 1-7496 1-7496 1-7498 1- | 0.0 0.0500 0.1500 0.1500 0.2900 0.4900 0.5020 0.7900 0.4900 0.9000 0.900 0.900 | 0.9097 -1.2194 -1.3(93 -1.3(23 -1.3170 -1.3151 -1.2010 -1.2246 -0.8003 -0.4752 -0.2618 -0.1055 0.0708 0.0 0.0 0.0 0.0690 -0.0690 | 91200 1.6928 1.8725 1.8125 1.8164 1.8022 1.6735 1.693 1.349 1.349 1.349 0.9340 0.9442 0.0 0.7494 0.8451 0.8851 | 0.0 0.0500 0.1000 0.1100 0.2000 0.4000 0.5000 0.6000 0.9000 0.9000 0.0 0.0 | 0.9756 -1.1202 -1.3809 -1.3762 -1.202 -1.202 -1.203 -0.5506 -0.4772 -0.3323 -0.1103 -0.1103 -0.00 0.00 | ML 0.3358 1.5358 1.6356 1.8356 1.8736 1.7742 1.5903 1.1357 1.0543 0.9852 0.9356 0.3358 0.000 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 COWER 1 2 3 4 5 | \$196 0.0259 0.7559 0.7559 0.7559 0.1559 0.2099 0.3099 0.4000 0.5090 0.6010 0.7090 0.80 | 1.0894 -0.8294 -1.1486 -1.147 -1.2147 -1.2158 -1.1419 -1.3772 -1.3679 -1.1788 -1.2198 -1.2198 -0.278 0.3062 0.9594 0.2703 0.6037 0.6037 | 0.34.36 1.3536 1.3536 1.6212 1.6272 1.7105 1.5551 1.5565 1.5565 1.5637 1.6231 1.2122 1.0733 0.8626 0.7256 0.3436 0.7256 | 0.0 0.0251 0.0251 0.1561 0.1561 0.1561 0.2009 0.3092 0.4001 0.6001 0.7009 0.4901 0.9001 0.9001 0.1003 | 0.9423 -1.6264 -1.1802 -1.7735 -1.3027 -1.2024 -1.2044 -1.1429 -0.2766 -0.2064 -0.3192 -0.8400 -0.2344 -0.1167 -0.354 -0.3192 | #L 1.209 1.5524 1.7527 1.7731 1.7731 1.7739 1.6776 1.6776 1.6779 1.6158 1.6779 1.6158 0.9814 0.7190 0.4129 0.4829 0.4829 0.4829 | 0.0 0.0500 0.1500 0.1500 0.200 0.4000 0.5000 0.6000 0.7000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 0.9000 | 0.997 -1.2194 -1.3265 -1.3151 -1.2066 -0.8052 -0.4752 -0.2818 -0.1055 0.0 0.0 0.0 0.0 0.0 0.060 -0.0060 -0.0060 | ML 9.3200 1.6928 1.8725 1.8124 1.8926 1.6736 1.6736 1.022 1.4736 1.024 1.024 0.0340 0.000 0.7949 0.000 0.7949 0.000 0.7949 0.000 0.7949 0.000 0.7949 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.7000 0.9000 0.9000 0.0 0.0 0.0 0.0 | 0.9756 -1.1250 -1.3809 -1.3702 -1.2202 -1.2202 -1.203 -1.0408 -0.6506 -0.7772 -0.2035 -0.1103 -0.000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | ML 0.3354 1.5959 1.6956 1.6736 1.7742 1.6931 1.2403 1.1357 0.9852 0.9852 0.9355 0.6987 0.0 0.3358 0.4686 0.4393 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 5 COWER 1 2 3 4 5 6 7 | \$196 0.075 0.7559 0.7559 0.7559 0.1579 0.1579 0.2099 0.3099 0.4090 0.5790 0.6099 0.4090 0.5106 0.0099 0.4090 0.5106 0.0099 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 | 7.9694 -0.9293 -1.1490 -1.1147 -1.2159 -1.1147 -1.2159 -1.1772 -1.0772 -1.0769 -1.1089 -1.2199 -0.0542 0.9692 0.9692 0.9693 0.2750 0.9694 0.2750 0.9694 0.2750 0.9694 0.2750 0.9694 0.2750 | 0.3636 1.3516 1.3516 1.3516 1.3517 1.4972 1.7105 1.5551 1.5551 1.5551 1.5665 1.5731 1.2123 0.8726 0.7256 0.7256 0.7364 0.8744 1.0016 | 0.0 0.0253 0.0253 0.0253 0.0253 0.1563 0.1563 0.2009 0.3093 0.6003 0.6003 0.7009 0.4933 1.0003 0.1503 0.7009 0.1503 0.7009 0.1503 0.7009 0.1503 0.7009 0.1503 0 | (c) 3.440 -1.184 -1.249 -1.249 -1.1249 -1.1249 -1.1249 -1.1249 -1.1249 -1.1249 -1.1429 | Mt. 12H 12H 12 14 12H 12 14 12H 12 14 12 1 | 0.0 0.0500 0.1500 0.2500 0.2500 0.4000 0.5000 0.4000 0.4000 0.9000 0.9000 0.9000 0.9000 0.0500 0.0500 0.1000 0.1000 0.1000 0.1000 0.1000 0.2000 0.4000 | 0.997 -1.2194 -1.3(24) -1.3(25) -1.3150 -1.3151 -1.2010 -1.2060 -0.4752 -0.2818 -0.1055 0.0708 0.0 0.9997 0.1590 0.0690 -0.0402 -0.2825 -0.2818 | 0.3200 0.3200 0.3200 0.3200 0.3200 0.3200 0.7944 0.9342 0.0 0.3200 0.7949 0.9340 0.0 0.7949 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 0.9340 | 0.0 0.0500 0.1500 0.1500 0.2000 0.1500 0.4000 0.5000 0.7000 0.9000 0 | CP 0.975e 1.1262 1.3702 -1.3702 -1.3702 -1.2620 -1.2620 -1.2620 -0.6708 -0.6708 -0.6708 0.00232 -0.375e 0.00232 | ML 0.3354 1.5956 1.6956 1.6738 1.7742 1.6931 1.2403 1.1357 0.9852 0.9852 0.9852 0.9852 0.935 0.935 0.935 0.935 0.935 0.935 0.935 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 EUWER 2 3 4 5 6 7 7 8 | \$19E 0.0259 0.7599 0.7599 0.1599 0.1599 0.2099 0.4000 0.5990 0.6999 0.6999 0.4000 0.6999 0.69 | 7,959-9-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1- | " 0.3636 1.3536 1.3536 1.3536 1.3536 1.3543 1.5543 1.5543 1.5541 1.5565 1.5565 1.5565 0.3636 0.7756 0.3636 0.7756 0.3636 0.7756 0.3636 0.7756 0.3636 0.7756 0.3636 0.7756 0.3636 0.7756 | 0.0 0.0251 1.0251 1.0276 0.1501 0.1501 0.2009 0.3007 0.4001 0.6001 0.8001 0.8001 0.9001 0.9001 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 | (°) | "(1.4 12 H 1.2 12 H | 0.0 0.1500 0.1500 0.2500 0.2500 0.4000 0.4000 0.4000 0.4000 0.0 0.0 0 | CF U.9977 -1.2194 -1.3293 -1.3263 -1.3151 -1.2010 -1.3151 -1.2010 -1.3151 -1.2010 -1.3151 -1.2010 -0.4752 -0.2818 -0.4752 -0.2818 -0.4752 -0.2752 -0.2754 | ML 2.3200 1.6924 1.8125 1.8124 1.8925 1.6925 | 0.0 0.00 0.100 0.100 0.100 0.200 0.200 0.200 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0 | CP 0.975c -1.1220 -1.3809 -1.3762 -1.2201 -1.2201 -1.1048 -0.6506 -0.4712 -0.3323 -0.1103 -0.100 0.0 0.975c -0.1128 -0.2119 -0.4323 -0.1256 -0.4323 | ML 0.3358 1.5959 1.6356 1.6738 1.7742 1.6937 1.2493 1.2493 1.2593 0.9852 0.9897 0.0 0.3358 0.4393 0.4393 0.4393 0.4393 0.4393 0.4393 0.4393 0.4393 0.4393 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 5 6 6 7 8 9 9 | \$116 0.0 0.7259 0.7519 0.75519 0.1570 0.1570 0.2099 0.3090 0.5710 0.60119 0.7090 0.8710 0.8710 0.8710 0.8710 0.051 | 7.9699 -0.9293 -1.1490 -1.1147 -1.2159 -1.1147 -1.2159 -1.1919 -1.0979 -1.1089 -1.2199 -0.0364 -0.2790 -0.9594 -0.2700 -0.9594 -0.2700 -0.9594 -0.2700 -0.9594 -0.2700 -0.9594 -0.2700 -0.0700 | 0.3636 1.3516 1.3516 1.3516 1.3517 1.4972 1.7105 1.5551 1.5561 1.5665 1.5665 1.5731 1.2123 0.8526 0.7756 0.7756 0.8744 1.0016 0.8744 1.0016 0.9767 0.9767 | 0.9 0.0551 1.0761 0.1553 1.1763 0.1553 0.2009 0.3027 0.4030 0.6000 0.6000 0.7009 0.8000 0.7009 0.8000 0.1003 0 | 0.9 0.940 1.180 1.780 1.780 1.780 1.397 1.397 1.249 1.1247 1.1247 1.1429 0.7062 0.3192 0.3192 0.354 0.3192 0.393 0.354 0.271 0.2062 0.3062 0.1751 | M, 12H 12H 12 14 12H 12 14 12H 12 14 | 0.0 0.0500 0.1500 0.2500 0.2500 0.4000 0.4000 0.4000 0.4000 0.0000 0.0000 0.0000 0.2500 | 0.997 -1.2194 -1.3(24) -1.3(26) -1.3151 -1.3151 -1.3151 -1.2010 -1.2246 -0.1055 0.9708 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | 0.3200 0.7450 0.000 0.0000 0.000 0.0000 0.000 0.0000 0.000 0.0000 0.0000 0.0000 0.0000 0.000 0.000 0.000 | 0.0 0.0500 0.1000 0.1000 0.2007 0.4000 0.5000 0.7000 0.9000 0 | CP 0.9756 -1.1262 -1.3702 -1.3702 -1.2620 -1.2620 -1.2620 -1.2620 -0.6716 0.00 0.9756 0.0232 -0.0506 -0.1158 -0.2159 -0.2671 -0.168 | ML 0.3358 1.5459 1.8739 1.8738 1.7742 1.6937 1.2453 1.2453 1.2453 1.2453 1.3553 0.9852 0.9852 0.9852 0.9358 0.9892 0.9358 0. |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 11 14 15 ER 2 3 4 5 6 7 8 9 10 | \$116 3.0 0.3259 0.3753 0.3753 0.1533 0.2000 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.5330 | 7,959-9-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1- | " 0.3636 1.3536 1.3536 1.3536 1.3537 1.3536 1.3543 1.3556 1.3556 1.3556 1.3536 0.7257 | 0.9 0.0251 0.0251 0.0251 0.0251 0.1551 0.2000 0.3000 0.5000 0.6000 0 | CP 3.46) 3.660 4.1807 4.197 4.397 4.397 4.197 4.197 4.197 4.1195 4.1299 4.1195 4.1296 4.1296 4.1195 4.1296 4.1197 | " | 9.0 0.9500 0.1500 0.1500 0.2900 0.2900 0.9000 0.4000 0.4000 0.4000 0.9000 0.1500 0.1500 0.250 | 0.997 - 1.2194 - 1.3295 - 1.3150 - 1.3151 - 1.3265 - 1.3151 - 1.3265 - 1.3151 - 1.2246 - 0.8053 - 0.2818 - 0.1055 - 0.3750 - 0.0 | ML 2.3208 1.6228 1.8125 1.8124 1.8026 1.8125 1.6228 | 0.0 0.00 0.100 0.100 0.100 0.200 0.200 0.200 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0 | CP 0.976 -1.1220 -1.3702 -1.3702 -1.202 -1.202 -1.1046 -0.4712 -0.2035 -0.1103 -0.3170 0.0 0.9756 -0.2159 -0.2119 -0.2119 -0.3123 -0.1021 | ML J. 315 1. 545 1. 635 1. 7742 1. 7742 1. 7497 1. 2493 1. 1357 1. 0543 0. 9852 0. 3897 0. 0 0. 4358 0. 4368 0. 4368 1. 1106 1. 11 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 2 13 14 5 6 6 7 8 9 9 | \$116 0.0 0.7259 0.7519 0.75519 0.1570 0.1570 0.2099 0.3090 0.5710 0.60119 0.7090 0.8710 0.8710 0.8710 0.8710 0.051 | 7.9699 -0.9293 -1.1490 -1.1147 -1.2159 -1.1147 -1.2159 -1.1919 -1.0979 -1.1089 -1.2199 -0.0364 -0.2790 -0.9594 -0.2700 -0.9594 -0.2700 -0.9594 -0.2700 -0.9594 -0.2700 -0.9594 -0.2700 -0.0700 | 0.3636 1.3516 1.3516 1.3516 1.3517 1.4972 1.7105 1.5551 1.5561 1.5665 1.5665 1.5731 1.2123 0.8526 0.7756 0.7756 0.8744 1.0016 0.8744 1.0016 0.9767 0.9767 | 0.9 0.0551 1.0761 0.1553 1.1763 0.1553 0.2009 0.3027 0.4003 0.6003 0.7009 0.8003 0.7009 0.8003 0.1003 0 | 0.9 0.940 1.180 1.780 1.780 1.780 1.397 1.397 1.249 1.1247 1.1247 1.1429 0.7062 0.3192 0.3192 0.354 0.3192 0.393 0.354 0.271 0.2062 0.3062 0.1751 | M, 12H 12H 12 14 12H 12 14 12H 12 14 | 0.0 0.0500 0.1500 0.2500 0.2500 0.4000 0.4000 0.4000 0.4000 0.0000 0.0000 0.0000 0.2500 | 0.997 -1.2194 -1.3(24) -1.3(26) -1.3151 -1.3151 -1.3151 -1.2010 -1.2246 -0.1055 0.9708 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | 0.3200 0.7450 0.000 0.0000 0.000 0.0000 0.000 0.0000 0.000 0.0000 0.0000 0.0000 0.0000 0.000 0.000 0.000 | 0.0 0.0500 0.1000 0.1000 0.2007 0.4000 0.5000 0.7000 0.9000 0 | CP 0.9756 -1.1262 -1.3702 -1.3702 -1.2620 -1.2620 -1.2620 -1.2620 -0.6716 0.00 0.9756 0.0232 -0.0506 -0.1158 -0.2159 -0.2671 -0.168 | ML 0.3358 1.5459 1.8739 1.8738 1.7742 1.6937 1.2453 1.2453 1.2453 1.2453 1.3553 0.9852 0.9852 0.9852 0.9358 0.9892 0.9358 0. |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 11 14 15 ER 2 3 4 5 6 7 8 9 10 | \$116 3.0 0.3259 0.3753 0.3753 0.1533 0.2000 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.53300 0.5330 | 7,959-9-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1- | " 0.3636 1.3536 1.3536 1.3536 1.3537 1.3536 1.3543 1.3556 1.3556 1.3556 1.3536 0.7257 | 0.9 0.0251 0.0251 0.0251 0.0251 0.1551 0.2000 0.3000 0.5000 0.6000 0 | CP 3.46) 3.660 4.1807 4.197 4.397 4.397 4.197 4.197 4.197 4.1195 4.1299 4.1195 4.1296 4.1296 4.1195 4.1296 4.1197 | " | 9.0 0.9500 0.1500 0.1500 0.2900 0.2900 0.9000 0.4000 0.4000 0.4000 0.9000 0.1500 0.1500 0.250 | 0.997 - 1.2194 - 1.3295 - 1.3150 - 1.3151 - 1.3265 - 1.3151 - 1.3265 - 1.3151 - 1.2246 - 0.8053 - 0.2818 - 0.1055 - 0.3750 - 0.0 | ML 2.3208 1.6228 1.8125 1.8124 1.8026 1.8125 1.6228 | 0.0 0.00 0.100 0.100 0.100 0.200 0.200 0.200 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0 | CP 0.976 -1.1220 -1.3702 -1.3702 -1.202 -1.202 -1.1046 -0.4712 -0.2035 -0.1103 -0.3170 0.0 0.9756 -0.2159 -0.2119 -0.2119 -0.3123 -0.1021 | ML J. 315 1. 545 1. 635 1. 7742 1. 7742 1. 7497 1. 2493 1. 1357 1. 0543 0. 9852 0. 3897 0. 0 0. 4358 0. 4368 0. 4368 1. 1106 1. 11 |

Table 3.12: Pressure data (M = 0.88 $\alpha = 2^{\circ}$)

| | | SECTION | нѕ | | SECTION | | | SECTION | , | | SECTION | |
|---|---|---|--|--|--|---|---|--|--|---|--|--|
| NR | 1/0 | CP | ML | 416 | CP | ML | X/C | CP | ML | X/C | CP | ML |
| UPPFR | SIDE | | | | | | | | | | | - |
| 1 | 9.0 | 1.2735 | 0.0 | 0.0 | 1.149 | 0.1403 | 0.0 | 1.1108 | 0.2431 | 0.0 | 1.0540 | 0.2933 |
| 5 | 0.0250 | -0.7019 | 1.0055 | 0.0250 | -0.5957 | 1.2719 | 0.0250 | -0.5849 | 1.2628 | 0.0250 | -0.6341 | 1.2461 |
| 3 | 0.0500 | -0.4979 | 1.1494 | 0.05)) | -0.7412 | 1.3742 | 0.0500 | -0.4350 | 1.4471 | C. 0500 | -0.8823 | 1.4853 |
| ; | 0.1750 | -0.4959 | 1.2490 | 0.1900 | -1.1074 | 1.427 | 0.1000 | -0.9120 | 1.5669 | 0.0750 | -1.0740 | 1.4724 |
| 6 | 0.1500 | -0.5387 | 1.2332 | 0.1533 | -0.6141 | 1.2329 | 0.1500 | -0.7376 | 1.3729 | 0.1000 | -0.9024 | 1.0952 |
| 7 | 0.2000 | -0.5149 | 1.2172 | 0.200) | -0.6177 | 1./957 | 0.2000 | -0.6955 | 1.3345 | 0.2000 | -0.8451 | 1.503A |
| | 0. 330) | -0.3604 | 1.2477 | 0.3000 | -2.6451 | 1.3329 | 0.3000 | -0.7660 | 1.3938 | 0.3000 | -0.5817 | 1.48-7 |
| 9 | 2 223 | -0.5713 | 1.2554 | 0.4000 | -0.6610 | 1.3155 | 0.4000 | -0.7312 | 1.3680 | 0.4900 | -C. F. C! | 1.4678 |
| 10 | 0.5000 | -0.7713 | 1.3455 | 0.5000 | -0.7915 | 1.4140 | 0.5000 | -0.8444 | 1.4569 | 0.5000 | -0.9209 | 1.5239 |
| 11 | 0.6000 | -0.7701 | 1.3943 | 0.6300 | -0.9547 | 1.4641 | 0.6000 | -0.7463 | 1.5441 | 0.5000 | -1.0303 | 1.6342 |
| 12 | 0. 7700 | -O. 8256 | 1. 4411 | 0.7000 | -0.7152 | 1.5159 | 0.7000 | -0.7803 | 1.5764 | 0.7000 | -1.1075 | 1.7929 |
| 13 | 0.9310 | -7.1921 | 1.4769 | 0.8000 | -0.11474 | 1.4633 | 0.8000 | -0.9310 | 1.4442 | 0.8030 | -0.4123 | 1.15 14 |
| 14 | 0. 30 10 | -2.4723 | 1.1465 | 3.3000 | -0.2498 | 1.0552 | 0.9000 | -0.1967 | 1.0203 | 6.9000 | -0.1756 | 1. 21 46 |
| 15 | 1.9330 | -0.0218 | 0.9303 | 1.0000 | 0.3478 | 0. /339 | 1.0000 | 0.4376 | 0.6872 | 1.0010 | 0.0011 | 0.9960 |
| FUMER | SIDE | | | | | | | | | 19 19 | 2 102 | |
| 1 2 | 0.0 | 1.2735 | 0.0 | 0.0 | 1.1849 | 0.1493 | 0.0 | 1.1108 | 0.24:1 | 0.0 | 1.0540 | 0.2943 |
| 5 | 0.0500 | 0.4084 | 0.7026 | 0.050) | 0.1163 | 0.7712 | 0.0500 | 0.2661 | 0.7777 | 0.0500 | 0.2352 | 0.15-1 |
| | 0.1500 | 0.2695 | 0.7759 | 0.1500 | 0.1958 | 0.7708 | 0.1000 | 0.2416 | 0.7912 | 0.1000 | 0.1575 | 0. 6348 |
| • | 0.2000 | 0.2339 | 0.8104 | 0.2000 | 0.1048 | 0.8614 | 0.1500 | 0.0834 | 0.8744 | 0.1500 | -0.0102 | 0.6775 |
| 6 | 0.4000 | -0.1251 | C. 9864 | 0.4000 | -0.2384 | 1.0427 | 0.4000 | -0.2966 | 1.0335 | 0.4000 | -0.3213 | 1.0981 |
| i | 0.5000 | -0.2793 | 1.0742 | 0.5000 | - 1. 3 739 | 1.0977 | 0.5000 | -0.2921 | 1.0612 | 0.5000 | -0.2817 | 1.0754 |
| | 0.6000 | -0.1592 | 1.0054 | 0.5000 | -0.1410 | 0.9965 | 0.6000 | -0.1140 | 0.9825 | 0.6000 | -0.1168 | 0.9820 |
| 7 | 0.8000 | 0.0794 | 0.8653 | 9. 9000 | 0.1086 | 0. 4613 | 0.8000 | 0.1313 | 0.8486 | 0.8000 | 0-1469 | 0.8410 |
| 10 | 9.9000 | 9.1189 | 3.8556 | 0.4000 | 0.1395 | 0.8447 | 0.9000 | 0.1541 | 0.8160 | 0.9000 | 0.1441 | 0.8424 |
| 11 | 1.0000 | -0.0218 | 0.9363 | 1.0000 | 0.3498 | 0.7348 | 1.0000 | 0.4376 | 0.6872 | 1.0000 | 0.0611 | 0.8860 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | SECTION | | | SEC TION | • | | SECTION | | | SECTION | , |
| NR | x/C | SECTION | 4 41 | */C | SECTION CP | 5 ML | */5 | SECTION | 6 ML | ×/C | SECTION | 7 μι |
| NR UPPER | X/C SIDE | | | */C | | | */C | | | X/C | | |
| | | | | */C | | | «/C | | | 0.0 | | |
| UPPER | SINE 0.0 0.1250 | 1.0215 -0.6537 | 9L 0.3265 1.3113 | 0.0 | 3.9274 -3.5101 | 0.3974 1.2146 | 0.0 | 1.0302 -1.0204 | ML 0.3192 1.6142 | 0.0 | 1.0215 -0.9131 | ML 0.3262 1.5152 |
| UPPER | SIDE 0.0 0.1250 0.0500 | 1.0215 -0.6537 -0.9454 | 4L 0.3265 | 0.0 0.0250 0.0500 | 3.9274 -3.5101 -3.9895 | 0.3974 1.2146 1.5935 | 0.0 0.0500 0.1000 | 1.0302 -1.0204 -1.1634 | ML 0.3192 1.6142 1.7728 | 0.0 0.0500 0.1000 | 1.0215 -0.9131 -1.1670 | ML 0.3262 1.5152 1.7797 |
| UPPER 1 2 3 | \$10E 0.0 0.0250 0.0500 0.0750 | 1.0215 -0.6537 -0.9954 -1.0568 | 9L 0.3265 1.3113 1.5904 1.6505 | 0.0 0.0250 0.0500 0.0750 | 3.9274 -3.5101 -3.9895 -1.3939 | 0.3974 1.2146 1.5935 1.6394 | 0.0 0.0500 0.1000 0.1500 | 1.0302 -1.0204 -1.1634 -1.1430 | ML 0.3192 1.6142 1.7728 1.7479 | 0.0 0.0500 0.1000 0.1500 | 1.0215 -0.9131 -1.1670 -1.1795 | 0.3262 1.5152 1.7797 1.7955 |
| UPPER 1 2 3 4 5 | SIDE 0.0 0.1250 0.0500 0.0750 0.1000 | 1.0215 -0.6537 -0.9454 -1.0568 -1.0621 | 9L 0.3265 1.3113 1.5904 1.6505 1.6916 | 0.0 0.0250 0.0250 0.0750 0.1000 | 3.9274 -3.5101 -3.9895 -1.3939 -1.1263 | ML 0.3974 1.2146 1.5835 1.6394 1.7276 | 0.0 0.0500 0.1000 0.1533 0.2000 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 | 0.0 0.0500 0.1000 0.1500 0.2600 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 | 0.3262 1.5152 1.7797 1.7955 1.7631 |
| UPP ER 1 2 3 4 5 | SINE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 | 1.0215 -0.6537 -0.9954 -1.0569 -1.0921 -1.0845 | 0.3265 1.3113 1.5904 1.6505 1.6916 | 0.0 0.0250 0.0250 0.0500 0.0750 0.1000 0.1500 | 0.9274 -0.5101 -0.9895 -1.7939 -1.1263 -1.1247 | 0.3974 1.2146 1.5935 1.6394 1.7276 | 0.0 0.0500 0.1000 0.1530 0.2000 0.3000 | CP 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 | ML 0.3192 1.6142 1.7728 1.7479 1.7566 1.8113 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 | 0.3262 1.5152 1.7797 1.7955 1.7631 |
| UPP ER 1 2 3 4 5 6 7 | SINE 0.0 0.1250 0.0500 0.0750 0.1000 0.1500 0.2000 | 1.0215 -0.6537 -0.9954 -1.0569 -1.0621 -1.0845 -1.0029 | 91 0.3265 1.3113 1.5904 1.6505 1.6916 1.6911 | 0.0 9.0250 0.0500 0.0750 0.1000 0.1500 0.2000 | 3.9274 -0.5101 -0.9895 -1.0939 -1.1263 -1.1247 | ML 0-3974 1-2146 1-5935 1-6394 1-7276 1-7259 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0938 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.8113 1.6974 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 0.4600 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 | 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 |
| UPP ER 1 2 3 4 5 6 7 8 | SINE 0.0 0.1250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 | 1.0215 -0.6537 -0.9954 -1.9569 -1.0921 -1.0945 -1.0029 -0.9835 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5574 1.5791 | 0.0 9.0250 0.0500 0.0750 0.1000 9.1500 0.2000 | 0.9274 -0.5101 -0.9895 -1.0939 -1.1263 -1.1247 -1.1222 -1.1310 | ML 0.3974 1.2146 1.5835 1.6394 1.7276 1.7258 1.7229 1.7337 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0938 -1.1126 | ML 0.3192 1.6142 1.7728 1.7749 1.7568 1.8113 1.6974 1.7124 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 0.4600 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0571 -0.7152 | 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 |
| UPPER 1 2 3 4 5 6 7 8 | \$10E 0.0 0.1250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | 1.0215 -0.6537 -0.7454 -1.9569 -1.0821 -1.0825 -1.0029 -0.9835 -1.9164 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5574 1.5781 1.6102 | 0.0 9.0250 0.0500 0.0750 0.1000 9.1500 0.2000 0.3000 0.4000 | 0.9274 -0.5101 -0.9895 -1.0939 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 | ML 0.3974 1.2146 1.5435 1.6394 1.7276 1.7258 1.7229 1.7337 1.7293 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.6000 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0958 -1.1126 -0.9077 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.8113 1.0974 1.7124 1.5102 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 0.4000 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0571 -0.7152 -0.5330 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 |
| UPPER 1 2 3 4 5 6 7 8 9 | SIDE 0.0 0.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | 1.0215 -0.6537 -0.7454 -1.0569 -1.0821 -1.0845 -1.0029 -0.9835 -1.0164 -1.0484 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5574 1.5781 1.6102 1.6427 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 | 3.9274 -0.5101 -0.9895 -1.0939 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 -1.1595 | ML 0.3974 1.2146 1.5435 1.6494 1.7276 1.7259 1.7357 1.7293 1.7709 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.1126 -0.9077 -0.6099 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.8113 1.6974 1.7124 1.5102 1.5102 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 0.4600 0.5000 0.6000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0571 -0.7152 -0.5330 -0.4778 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 1.1947 |
| UPPER 1 2 3 4 5 6 7 8 9 | SIDE 0.0 0.1250 0.0550 0.0750 0.1500 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 | 1.0215 -0.6537 -0.7454 -1.0569 -1.0721 -1.0845 -1.0029 -0.9835 -1.0164 -1.0484 -1.1369 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6911 1.5574 1.5781 1.6102 1.6427 1.7406 | 0.0 9.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 | CP 3.9274 -0.5101 -0.9895 -1.939 -1.1247 -1.1242 -1.1310 -1.1248 -1.1595 -1.9870 | ML 0.3974 1.2146 1.5935 1.6394 1.7276 1.7259 1.7337 1.7293 1.7709 1.6854 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 | CP 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0938 -1.1126 -0.9077 -0.6099 -0.4751 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.8113 1.6974 1.7124 1.5102 1.2803 1.1918 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 0.4600 0.5000 0.6000 0.7000 0.8000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0571 -0.7152 -0.5330 -0.4099 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 1.1947 1.1510 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 | SIDE 0.0 0.1250 0.0500 0.1750 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 | 1.0215 -0.6537 -0.9454 -1.0569 -1.0721 -1.0845 -1.0029 -0.9835 -1.0164 -1.0484 -1.1369 -1.0707 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.671 1.5574 1.5781 1.6102 1.6427 1.7406 1.662 | 0.0 9.0257 0.0560 0.0750 0.1000 0.1500 0.2007 0.3000 0.4007 0.5000 0.6000 0.7000 | CP 3.9274 -0.5101 -0.9895 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 -1.1595 -1.9879 -1.9879 | ML 0.3974 1.2146 1.5835 1.6894 1.7276 1.7259 1.7259 1.7293 1.7709 1.6854 1.6364 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 | CP 1.0332 -1.0204 -1.1634 -1.1430 -1.1594 -1.1958 -1.0938 -1.1126 -0.9077 -0.6099 -0.4751 -0.3657 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.8113 1.6974 1.7124 1.5102 1.2803 1.1918 1.1249 | 0.0 0.0500 0.1009 0.1500 0.2690 0.4600 0.5000 0.6000 0.7000 0.8009 | CP 1.0215 -0.4131 -1.1670 -1.1795 -1.1551 -1.0571 -0.7152 -0.5330 -0.4778 -0.4099 -0.3237 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 1.1947 1.1510 1.0977 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | SIDE 0.0 0.1250 0.0550 0.0750 0.1000 0.1500 0.2000 0.3000 0.4000 0.5000 0.7000 0.4000 | 1.0215 -0.6537 -0.4454 -1.0569 -1.0845 -1.0029 -0.9835 -1.0164 -1.0164 -1.0707 -0.4703 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5574 1.5791 1.6102 1.6427 1.7406 | 0.0 9.9255 0.9509 0.1759 0.1009 0.1509 0.2007 0.3000 0.4007 0.5000 0.6000 0.6000 | 3.9274 -0.5101 -0.9895 -1.939 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 -1.1595 -1.0423 -0.6122 | ML 0.3974 1.2146 1.5935 1.6394 1.7276 1.7258 1.7293 1.7709 1.6854 1.6364 1.2810 | 0.0 0.0500 0.1000 0.1500 0.3000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0998 -1.1126 -0.9077 -0.6099 -0.4751 -0.3557 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.4113 1.6974 1.7124 1.5102 1.2803 1.1918 1.1249 1.0604 | 0.0 c.0500 0.1000 0.1500 0.2690 0.3000 0.4600 0.6000 0.7000 0.8000 0.9000 1.0000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0571 -0.7152 -0.5330 -0.4099 | ML 0.3262 1.5152 1.7797 1.7955 1.6946 1.6533 1.3550 1.2282 1.1947 1.1510 1.0997 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 | SIDE 0.0 0.1250 0.0500 0.1750 0.1500 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 | 1.0215 -0.6537 -0.9454 -1.9568 -1.0721 -1.0845 -1.0029 -0.4835 -1.0164 -1.0164 -1.0707 -0.4703 -2.1238 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.5641 1.5781 1.5102 1.6427 1.7406 1.6662 1.4786 0.9859 | 0.0 9.0257 0.0560 0.0750 0.1000 0.1500 0.2007 0.3000 0.4007 0.5000 0.6000 0.7000 | 0.9274 -0.5101 -0.9895 -1.9399 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 -1.1595 -1.9870 -1.0423 -0.6122 | ML 0.3974 1.2146 1.5835 1.6894 1.7276 1.7259 1.7259 1.7293 1.7709 1.6854 1.6364 | 0.0 0.0500 0.1500 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 | CP 1.0332 -1.0204 -1.1634 -1.1430 -1.1594 -1.1958 -1.0938 -1.1126 -0.9077 -0.6099 -0.4751 -0.3657 | ML 0.3192 1.6142 1.7728 1.77563 1.8113 1.6974 1.7124 1.5102 1.2803 1.1918 1.1249 1.0604 0.0 | 0.0 0.0500 0.1009 0.1500 0.2690 0.4600 0.5000 0.6000 0.7000 0.8009 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0857 -0.7152 -0.5330 -0.4778 -0.4099 -0.3239 -0.3239 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 1.1947 1.1510 1.0977 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 | SIDE 0.0 0.1250 0.0550 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.9000 | 1.0215 -0.6537 -0.4454 -1.0569 -1.0845 -1.0029 -0.9835 -1.0164 -1.0164 -1.0707 -0.4703 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5574 1.5791 1.6102 1.6427 1.7406 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.3000 0.4000 0.6000 0.7000 0.6000 | 3.9274 -0.5101 -0.9895 -1.939 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 -1.1595 -1.0423 -0.6122 | 0.3974 1.2146 1.985 1.6394 1.7276 1.7258 1.729 1.7397 1.729 1.6854 1.6364 1.2810 1.2747 0.6913 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | 1.0302 -1.0204 -1.1634 -1.1504 -1.1958 -1.0998 -1.1126 -0.9077 -0.6099 -0.4751 -0.3657 -0.2563 | ML 0.3192 1.6142 1.7728 1.7479 1.7568 1.4113 1.6974 1.7124 1.5102 1.2803 1.1918 1.1249 1.0604 | 0.0 0.0500 0.1000 0.1500 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -0.7152 -0.5330 -0.4776 -0.4099 -0.3239 -0.2380 0.0 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 1.1947 1.1510 1.0997 1.0999 0.0 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | SIDE 0-0 0-1250 0-250 0-2500 0-1500 0-1500 0-2000 0-3000 0-5000 0-6000 0-7000 0-9100 1-9000 | 1.0215 -0.6537 -0.9454 -1.9568 -1.0721 -1.0845 -1.0029 -0.4835 -1.0164 -1.0164 -1.0707 -0.4703 -2.1238 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.5641 1.5781 1.5102 1.6427 1.7406 1.6662 1.4786 0.9859 | 0.0 0.0250 0.0250 0.0750 0.1000 0.1500 0.3000 0.4000 0.6000 0.7000 0.6000 | 0.9274 -0.5101 -0.9895 -1.9399 -1.1263 -1.1247 -1.1222 -1.1310 -1.1248 -1.1595 -1.9870 -1.0423 -0.6122 | ML 0.3974 1.2146 1.5439 1.64394 1.7276 1.7258 1.7229 1.7337 1.7293 1.7709 1.6654 1.6364 1.2830 1.6747 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | 1.0302 -1.0204 -1.1634 -1.1504 -1.1958 -1.0998 -1.1126 -0.9077 -0.6099 -0.4751 -0.3657 -0.2563 | ML 0.3192 1.6142 1.7728 1.77563 1.8113 1.6974 1.7124 1.5102 1.2803 1.1918 1.1249 1.0604 0.0 | 0.0 0.0500 0.1000 0.1500 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -0.7152 -0.5330 -0.4776 -0.4099 -0.3239 -0.2380 0.0 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6533 1.3550 1.2282 1.1947 1.1510 1.9777 1.0-99 |
| UPPER 1 2 3 3 4 5 6 7 8 9 10 11 12 13 14 15 LGWER 1 2 | SINE 0.0 0.1252 0.3550 0.3550 0.1550 0.1550 0.2020 0.4000 0.5000 0.5000 0.7000 0.4000 0.4000 0.7000 0.4000 | 1.0215 -0.6545 -1.0545 -1.0569 -1.0721 -1.0845 -1.0029 -0.9835 -1.0164 -1.1369 -1.0707 -0.4703 -0.1238 J.6231 | 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5574 1.6102 1.6427 1.7406 1.6662 1.4786 0.9859 0.3265 0.8033 | 0.0 0.0255 0.0255 0.1050 0.1750 0.1500 0.2007 0.3000 0.4000 0.6000 0.7000 0.9007 1.7000 | 3.9274 -0.5101 -0.9895 -1.0939 -1.1267 -1.1267 -1.1222 -1.1310 -1.1248 -1.1349 -1.0423 -0.6122 -0.2836 0.0510 | ML 0.3974 1.2146 1.5895 1.6494 1.7276 1.7276 1.7293 1.7709 1.6854 1.6854 1.2810 1.0747 0.6913 0.3974 0.6139 | 0.0 0.0500 0.1000 0.1550 0.2000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 0.0 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0998 -1.1126 -0.9097 -0.6099 -0.4751 -0.3657 -0.2563 0.0 | ML 0.3192 1.6142 1.7728 1.77479 1.7568 1.4113 1.6974 1.7124 1.5102 1.2803 1.1918 1.1249 1.0604 0.0 0.3192 0.8739 | 0.0 0.0500 0.1500 0.1500 0.2600 0.3000 0.4600 0.5000 0.8000 0.9000 1.0000 0.000 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0571 -0.7152 -0.5330 -0.4099 -0.3239 -0.3239 -0.2390 -0.000 -0.0000 -0.0000 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6533 1.3550 1.2262 1.1947 1.1510 1.0999 0.0 |
| UPPER 1 2 3 3 4 5 6 6 7 8 9 10 11 12 13 14 15 LGWER | SIDE 0.0 0.1253 0.3253 0.3530 0.1330 0.1330 0.1330 0.2033 0.3030 0.4030 0.4030 0.4030 0.4030 0.4030 0.4030 0.4030 0.4030 0.4030 | 1.0215 -0.6557 -0.5754 -1.0569 -1.0721 -1.0845 -1.0164 -1.0164 -1.0164 -1.0164 -1.0707 -0.4703 | NL 0.3265 1.3113 1.5904 1.6505 1.6816 1.6816 1.5674 1.5782 1.6102 1.6427 1.7406 1.6662 1.4785 0.9859 0.3265 0.8037 | 0.0 9.0250 0.0250 0.0750 0.1000 0.1500 0.2000 0.4000 0.5000 0.6000 0.7000 0.6000 0.7000 0.0500 0.0500 0.1000 | 3.9274 -0.5101 -0.9895 -1.1263 -1.1263 -1.127 -1.127 -1.1287 -1.1287 -1.0879 -1.0423 -0.6122 -0.2816 0.0510 | ML 0.3974 1.2146 1.5495 1.6494 1.7276 1.729 1.729 1.7397 1.729 1.6854 1.2810 1.2747 0.6913 0.3974 0.8139 0.8791 | 0.0 0.0500 0.1500 0.1500 0.1500 0.2000 0.5000 0.6000 0.7000 0.9000 1.0000 0.0 | 1.0302 -1.0204 -1.1634 -1.1430 -1.1504 -1.1958 -1.0998 -1.1126 -0.9077 -0.6099 -0.4751 -0.3657 -0.2563 0.0 | ML 0.3192 1.6142 1.7728 1.7728 1.7749 1.7564 1.4113 1.6774 1.7124 1.5102 1.2803 1.1918 1.1249 1.0604 0.0 0.3192 0.8192 0.8194 | 0.0 0.0500 0.1500 0.1500 0.2600 0.2600 0.4600 0.6000 0.7000 0.8000 0.9000 1.0000 0.0 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0857 -1.0571 -0.7152 -0.4079 -0.3237 -0.3890 0.0 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6946 1.6353 1.3550 1.1220 1.1947 1.1510 0.0 0.0 0.0 0.3262 0.9523 0.7783 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LGMER 1 2 | SINE 0.0 0.3253 0.3253 0.3253 0.1350 0.1350 0.1350 0.2033 0.4000 0.5000 0.6000 0.7000 0.7000 0.9173 1.0003 SIDE 0.0000 0.1550 | 1.0215 -0.6537 -0.4754 -1.0563 -1.0721 -1.0845 -1.0929 -0.9835 -1.0164 -1.1369 -1.0707 -0.4703 -3.1238 3.6231 | 94 0.3265 1.3113 1.5904 1.6905 1.6916 1.6411 1.5774 1.6102 1.6427 1.7406 1.6426 0.9859 0.3265 0.8033 0.8467 | 0.0 9.0250 0.0500 0.0750 0.1000 0.1500 0.2000 0.5000 0.6000 0.6000 0.9000 0.1000 0.1500 | 3,9274 -0.5101 -0.9895 -1.939 -1.1261 -1.1261 -1.1241 -1.1248 -1.1595 -1.0870 -1.0612 -0.2816 0.0510 0.9274 0.1972 0.0830 -0.030830 | ML 0.3974 1.2145 1.5895 1.6994 1.7258 1.7293 1.7293 1.7293 1.7709 1.6854 1.2630 1.2747 0.6913 0.3974 0.8139 0.8742 | 0.0 0.0500 0.1500 0.1500 0.3000 0.3000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 0.1000 0.1500 | 1.0332 -1.0204 -1.1634 -1.1634 -1.1594 -1.1596 -1.1596 -1.0998 -1.1126 -0.9097 -0.4751 -0.3653 0.0 0.0 1.0302 0.0831 0.00674 | ML 0.3192 1.6142 1.7728 1.7728 1.7749 1.7568 1.4113 1.6974 1.5102 1.2003 1.1918 1.1249 0.0 0.3192 0.8739 0.9146 | 0.0 0.0500 0.1500 0.2600 0.3000 0.4000 0.5000 0.6000 0.8000 0.9000 1.0000 0.0000 0.0000 0.0000 0.1000 0.1500 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -0.7152 -0.5330 -0.4776 -0.4776 -0.4999 -0.3230 0.0 | ML 0.3262 1.5152 1.7797 1.7955 1.6946 1.6946 1.3550 1.2282 1.1947 1.1510 1.0949 0.0 0.3242 0.9523 0.7783 1.0026 |
| UPPER 1 2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LGHER 1 2 3 4 5 5 | SINE 0.0 0.1253 0.3253 0.3550 0.1330 0.1530 0.1530 0.1530 0.4300 0.5000 0.7000 0.4100 0.4100 0.7000 0.4100 0.7100 0.4100 0.7100 | 1.0215 -0.6317 -0.4454 -1.0569 -1.0629 -1.0045 -1.0049 -1.0049 -1.0049 -1.0049 -1.0707 -1.0709 | %L 0.3265 1.3113 1.5904 1.6505 1.6916 1.6411 1.5774 1.5781 1.6127 1.7466 1.4786 0.9859 0.3265 0.8036 0.8667 0.8687 0.8799 | 0.0 0.0257 0.9501 0.1750 0.1000 0.1500 0.4001 0.6000 0.6000 0.9007 1.9000 0.0000 0.1000 0.1000 0.1500 0.1500 | 3.9274 -0.5101 -0.9895 -1.9939 -1.1264 -1.1247 -1.1248 -1.1248 -1.1549 -1.0879 -1.0879 -1.0823 -0.0122 -0.2816 -0.0510 | ML 0.3974 1.2145 1.5435 1.6494 1.7276 1.7259 1.7299 1.7397 1.7299 1.6354 1.2810 1.014 1.01 | 0.0 0.0500 0.1000 0.1500 0.2000 0.3000 0.5000 0.6000 0.7000 0.9000 1.0000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | CP 1.0332 -1.0204 -1.1634 -1.1634 -1.1594 -1.1958 -1.126 -0.9938 -1.126 -0.9957 -0.2563 0.0 0.0 1.0302 0.001 0.0060 -0.0574 -0.1350 | ML 0.3192 1.6142 1.7728 1.7749 1.7564 1.8113 1.0674 1.7124 1.1249 1.1249 1.0004 0.0 0.0 0.3192 0.9146 0.9991 | 0.0 0.0500 0.1000 0.1500 0.2600 0.3000 0.4600 0.5000 0.7000 0.8000 0.9000 1.0000 0.0000 0.0000 0.1000 0.1500 0.1500 0.2000 | 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -1.0591 -0.7152 -0.5330 -0.4776 -0.4099 -0.1237 -0.3237 -0.3239 -0.0237 -0.0209 -0.1089 -0.1189 -0.1189 -0.1189 | ML 0.3262 1.5152 1.7797 1.7955 1.6533 1.3550 1.2282 1.1947 1.1510 0.0 0.0 0.3242 0.9373 1.0504 1.0504 1.0504 1.0504 1.0504 |
| UPPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LGHER 1 2 3 4 5 6 | SINE 0.0 0.1253 0.3253 0.3253 0.3253 0.1250 0.1250 0.1250 0.2022 0.3020 0.4000 0.4000 0.7000 0.7000 0.9072 1.0020 SIDE 0.0020 0.0020 0.1002 0.1500 0.1002 0.1500 0.1002 0.1500 0.1002 0.1500 0.1002 0.1500 0.1002 0.1500 0.1002 | 1.0215 -0.6537 -0.7454 -1.0763 -1.0761 -1.0763 -1.0761 -1.0049 -1.0707 -2.1238 J.6231 1.02185 0.1351 0.0582 -0.0209 -0.9703 | 9L 0.3265 1.3113 1.5304 1.5304 1.6505 1.6411 1.5674 1.5778 1.5778 1.7406 0.9859 0.3869 0.3869 0.3869 0.3869 0.3869 | 0.0 0.0255 0.9505 0.1759 0.1000 0.1500 0.4007 0.5000 0.6000 0.9000 0.9000 0.1500 0.1500 0.1500 0.2000 0.1500 0.2000 0 | 0.9274 -0.5101 -0.9895 -1.0939 -1.1264 -1.1264 -1.1262 -1.1310 -1.1268 -1.1595 -1.0979 -0.0122 -0.2816 -0.0510 -0.979 -0.0122 -0.0830 -0.0761 -0.0761 | ML 0.3974 1.2146 1.5935 1.6936 1.7276 1.7258 1.7229 1.7337 1.7203 1.7709 1.6854 1.6154 1.624 0.6139 0.6139 0.6139 0.6139 0.6139 0.6139 | 0.0 0.0500 0.10500 0.11500 0.2000 0.3000 0.5000 0.6000 0.7000 0.9000 1.0000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | CP 1-03-32 -1-0204 -1-1634 -1-1634 -1-1634 -1-1758 -1-1126 -0-907 -0-097 -0-099 -0-4751 -0-3563 0-0 0-0 1-0-302 0-0831 0-00574 -0-1350 -0-1350 -0-1350 | ML 0.3192 1.6142 1.7728 1.7728 1.7749 1.7568 1.4111 1.6714 1.5102 1.7808 1.1918 1.1249 1.0604 0.0 0.3192 0.3192 0.4739 0.91492 0.9999 0.9191 | 0.0 0.0500 0.1500 0.2600 0.2600 0.3000 0.4000 0.7000 0.8000 0.9000 0.9000 0.0000 0.1000 0.1000 0.2000 0.2000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -0.9530 -0.4776 -0.4939 -0.2399 -0.0629 -0.1089 -0.1534 -0.2487 -0.2487 -0.6876 | ML 0.3262 1.5152 1.7197 1.7955 1.6846 1.6533 1.3550 1.2282 1.1947 1.1510 1.0999 0.0 0.3262 0.9723 0.7783 1.0026 1.0026 1.0026 1.0026 1.0026 1.0026 1.0026 1.0026 1.0036 |
| UPPER 1 2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LGHER 1 2 3 4 5 5 | SINE 0.0 0.1253 0.0520 0.0520 0.0520 0.1570 0.1000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 1.0215 -0.6537 -0.754 -1.0563 -1.0521 -1.024 | %L 0.3265 1.3113 1.5804 1.6505 1.6916 1.6411 1.5674 1.5781 1.6102 1.4786 0.9859 0.3265 0.8467 0.8467 0.8791 0.9859 | 0.0 9.0250 7.0350 1.1500 9.11500 9.2007 9.3000 9.4000 9.7000 9.7000 9.0000 1.7000 0.7000 | CP 1.9274 -2.5101 -3.9895 -1.1261 -1.1261 -1.1262 -1.1310 -1.1222 -1.1310 -1.1242 -1.1310 -1.1242 -1.0877 -1.0423 -0.6122 -0.2816 0.9274 0.1972 0.9274 0.1972 0.9370 -0.0716 -0.0716 -0.0716 -0.0716 -0.0716 | ML 0.3974 1.2145 1.5435 1.6494 1.7276 1.7259 1.7397 1.7299 1.8354 1.2810 1.6544 1.2810 0.8741 0.8741 0.9722 0.9752 1.0756 | 0.0 0.0500 0.1700 0.1500 0.1500 0.1000 0.5000 0.7000 0.7000 0.9000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | CP 1.03)2 -1.0204 -1.1634 -1.11434 -1.11504 -1.1950 -1.0938 -1.1125 -0.9077 -0.6991 -0.4751 -0.3657 -0.2563 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | ML 0.3192 1.6142 1.7728 1.7728 1.7749 1.7564 1.8113 1.6714 1.1124 1.1124 1.1129 1.0004 0.0 0.3192 0.9146 0.9917 1.1037 | 0.0 0.0500 0.1500 0.1500 0.2600 0.5000 0.5000 0.7000 0.8000 0.7000 0.9000 1.00-10 0.000 0.1500 0.1500 0.2000 0.4000 0.5000 | CP 1.0215 -0.9131 -1.1670 -1.1790 -1.1790 -1.1751 -1.0751 -0.7152 -0.5330 -0.4790 -0.3237 -0.0629 -0.1089 -0.11534 -0.6876 -0.56876 | ML 0.3262 1.5152 1.7797 1.7955 1.7631 1.6533 1.3550 1.2242 1.1947 1.1510 0.0 0.0 0.3242 0.9523 0.7783 1.0056 1.3461 1.3461 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 LGMER 1 2 3 4 5 6 7 8 8 | SINE 0.0 0.1253 0.0520 0.0520 0.1550 0.1550 0.1550 0.4000 0.4000 0.7000 0.4000 0.4000 0.9100 0.9100 0.1500 0.1500 0.1500 0.1500 0.1000 0.1500 0.1500 0.1000 | 10215 -0.6537 -0.7546 -1.7059 -1.7059 -1.7051 -1.0044 -1.0049 -1.1369 -1.1369 -1.1369 -1.1369 -1.2159 -1.2155 -1.2185 | 4L 0.3265 1.3113 1.5304 1.5304 1.6505 1.6411 1.5674 1.5778 1.5778 1.7406 0.9479 0.9479 0.3265 0.8479 0.9499 0.3265 0.8479 0.9499 0.9729 | 0.0 9.0250 0.2750 0.1750 0.1000 0.1500 0.4000 0.6000 0.7000 0.9007 0.9000 0.1500 0.4000 0.4000 | 0.9274 -0.5101 -0.5895 -1.0939 -1.1264 -1.1264 -1.1222 -1.1310 -1.1248 -1.1595 -1.0870 -1.0870 -0.0122 -0.2816 -0.0122 -0.0830 -0.0172 -0.0830 -0.0172 -0.0830 -0.0172 -0.0161 -0.0172 -0.0161 -0.0172 -0.0161 | ML 0.3974 1.2146 1.5935 1.6936 1.7276 1.7259 1.7239 1.729 1.7337 1.7709 1.6854 1.6854 1.2810 1.0747 0.8913 0.8741 0.9222 0.9757 | 0.0 0.900 0.1900 0.1550 0.2000 0.1500 0.5000 0.5000 0.7000 0.9000 0.9000 0.1500 0.2000 0.2000 0.4000 | CP 1.03)2 -1.0204 -1.1634 -1.1634 -1.1594 -1.1998 -1.1126 -0.9097 -0.6099 -0.4751 -0.3657 -0.2563 0.0063 -0.0077 -0.1350 -0.1350 -0.3131 -0.723 | ML 0.3192 1.6142 1.7728 1.7728 1.7754 1.7754 1.7124 1.5102 1.2603 1.1918 1.1269 1.000 0.0 0.3192 0.9139 0.9146 0.0 0.9492 0.9917 1.1077 1.1074 | 0.0 0.1000 0.1000 0.1000 0.2000 0.2000 0.2000 0.5000 0.5000 0.7000 0.8000 0.9000 0.1000 0.1000 0.2000 0.4000 0.5000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -0.9539 -0.5330 -0.4778 -0.4939 -0.239 -0.399 -0.239 -0.249 -0 | ML 0.3262 1.5152 1.7797 1.7955 1.7651 1.6533 1.3550 1.2282 1.1947 1.1510 0.0 0.3262 0.9523 0.7783 1.0026 1.0026 1.0026 1.0026 1.0026 |
| UPP ER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 LGWER 1 2 3 4 5 6 7 8 9 9 | SINE 0.0 0.1250 0.0520 0.0520 0.0520 0.1570 0.1000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 0.4000 | 1.0215 -0.6537 -0.754 -1.0563 -1.0521 -1.024 -1.024 -1.024 -1.024 -1.024 -1.024 -1.024 -1.0364 | 91 0.3265 1.3113 1.5904 1.6505 1.6516 1.6711 1.5774 1.5781 1.6102 1.6727 1.7406 0.9859 0.3265 0.8667 0.8867 0.9301 1.0702 0.9401 1.0702 0.9401 1.0702 0.9401 0.9400 | 0.0 9.0250 0.3050 0.1750 0.11000 0.1500 0.3000 0.4000 0.7000 0.8000 0.1000 0.1000 0.1000 0.1500 0.2000 0.1000 0.1500 0.2000 0.4000 0.4000 0.5000 0.4000 0.5000 | CP 1.9274 -2.5101 -3.9895 -1.1261 -1.1261 -1.1262 -1.1310 -1.1242 -1.1310 -1.1242 -1.1310 -1.1242 -1.1310 -1.1242 -0.2816 0.0510 0.9274 0.11972 0.0812 0.08130 -0.0101 -0.0102 -0. | ML 0.3974 1.2146 1.5435 1.6435 1.7276 1.7276 1.7229 1.7327 1.7709 1.6554 1.6564 1.6264 0.6913 0.3974 0.4139 0.4972 1.044 1.0756 0.9973 | 0.0 0.0500 0.1500 0.1500 0.2000 0.1500 0.5000 0.7000 0.7000 0.9000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | CP 1.03)2 -1.0204 -1.1634 -1.11504 -1.11504 -1.1950 -1.0938 -1.1125 -0.9077 -0.6091 -0.2563 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | ML 0.3192 1.6142 1.7178 1.7564 1.4119 1.5102 1.209 1.209 0.00 0.00 0.0146 0.9492 0.9492 0.9492 1.007 1.1007 1.1007 1.00704 0.8833 1.0074 0.8833 1.0074 1.0078 1.007 | 0.0 0.0500 0.1500 0.2600 0.5000 0.5000 0.7000 0.8000 0.9000 0.0000 0.1000 0.1000 0.1000 0.1000 0.2000 0.4000 0.5000 0.4000 0.5000 0.4000 0.5000 0.6000 | CP 1.0215 -0.9131 -1.1670 -1.1790 -1.1791 -1.0591 -0.7152 -0.7152 -0.5330 -0.4770 -0.3237 -0.0529 -0.0529 -0.1089 -0.11534 -0.6876 -0.4499 -0.9568 | ML 0.3262 1.5152 1.7797 1.7955 1.7651 1.6593 1.3550 1.2262 1.1947 1.1510 0.0 0.0 0.0 0.3262 0.9523 0.789 1.0026 1.3346 1.3346 1.3346 1.1757 0.8664 |
| UPPER 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 LGMER 1 2 3 4 5 6 7 8 8 | SINE 0.0 0.1253 0.0520 0.0520 0.1550 0.1550 0.1550 0.4000 0.4000 0.7000 0.4000 0.4000 0.9100 0.9100 0.1500 0.1500 0.1500 0.1500 0.1000 0.1500 0.1500 0.1000 | 10215 -0.6537 -0.7546 -1.7059 -1.7059 -1.7051 -1.0044 -1.0049 -1.1369 -1.1369 -1.1369 -1.1369 -1.2159 -1.2155 -1.2185 | 4L 0.3265 1.3113 1.5304 1.5304 1.6505 1.6411 1.5674 1.5778 1.5778 1.7406 0.9479 0.9479 0.3265 0.8479 0.9499 0.3265 0.8479 0.9499 0.9729 | 0.0 9.0250 0.2750 0.1750 0.1000 0.1500 0.4000 0.6000 0.7000 0.9007 0.9000 0.1500 0.4000 0.4000 | 0.9274 -0.5101 -0.5895 -1.0939 -1.1264 -1.1264 -1.1222 -1.1310 -1.1248 -1.1595 -1.0870 -1.0870 -0.0122 -0.2816 -0.0102 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 -0.0103 | ML 0.3974 1.2146 1.5935 1.6936 1.7276 1.7259 1.7239 1.729 1.7337 1.7709 1.6854 1.6854 1.2810 1.0747 0.8913 0.8741 0.9222 0.9757 | 0.0 0.900 0.1900 0.1550 0.2000 0.1500 0.5000 0.5000 0.7000 0.9000 0.9000 0.1500 0.2000 0.2000 0.4000 | CP 1.03)2 -1.0204 -1.1634 -1.1634 -1.1594 -1.1998 -1.1126 -0.9097 -0.6099 -0.4751 -0.3657 -0.2563 0.0063 -0.0077 -0.1350 -0.1350 -0.3131 -0.723 | ML 0.3192 1.6142 1.7728 1.7728 1.7754 1.7754 1.7124 1.5102 1.2603 1.1918 1.1269 1.000 0.0 0.3192 0.9139 0.9146 0.0 0.9492 0.9917 1.1077 1.1074 | 0.0 0.1000 0.1000 0.1000 0.2000 0.2000 0.2000 0.5000 0.5000 0.7000 0.8000 0.9000 0.1000 0.1000 0.2000 0.4000 0.5000 | CP 1.0215 -0.9131 -1.1670 -1.1795 -1.1551 -0.9539 -0.5330 -0.4778 -0.4939 -0.239 -0.399 -0.239 -0.249 -0 | ML 0.3262 1.5152 1.7797 1.7955 1.7935 1.6533 1.3550 1.2282 1.1947 1.1510 0.0927 0.0927 0.0923 0.7783 1.0026 |

Table 3.13: Pressure data (M = 0.92; $\alpha = 2^{\circ}$)

| М | a | C _L | C _M | C _D |
|-------|-------|----------------|----------------|----------------|
| 0.800 | -0.90 | 0.15984 | -0.03969 | 0.0120? |
| 0.801 | 0.17 | 0.24408 | -0.03442 | 0.01479 |
| 0.800 | 1.25 | 0.32807 | -0.02913 | 0.01912 |
| 0.800 | 1.26 | 0.32871 | -0.02879 | 0.01918 |
| 0.800 | 2.28 | 0.41169 | -0.02271 | 0.02497 |
| 0.800 | 3.34 | 0.50299 | -0.01772 | 0.03384 |
| 0.800 | 4.40 | 0.58418 | -0.01214 | 0.04702 |
| 0.800 | 0.16 | 0.24388 | -0.03478 | 0.01465 |

Table 3.14: Force data (M = 0.8)

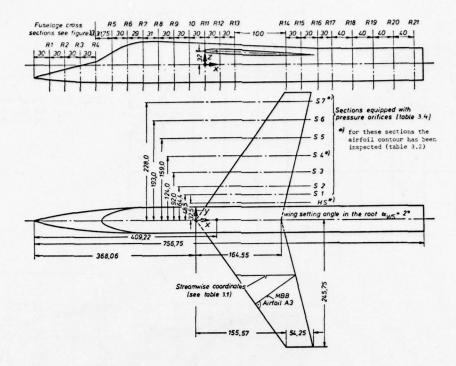


Fig. 3.1: MBB-AVA-Pilot model with supercritical wing

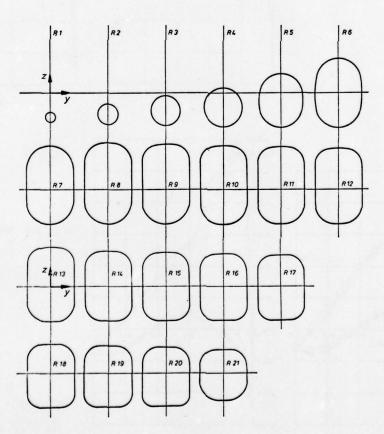


Fig. 3.2: Cross sections of the fuselage

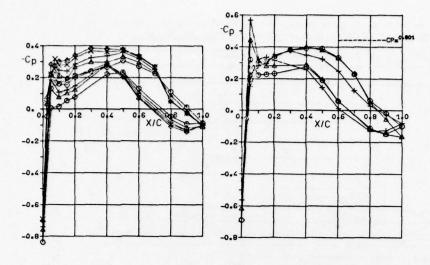


Fig. 3.3: Pressure distribution on the wing $(M = 0.8; \alpha = -2^{\circ})$

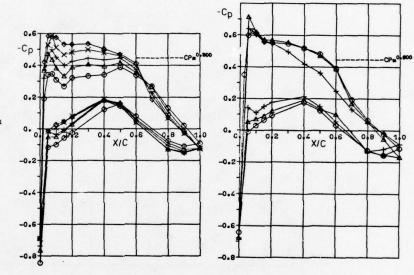


Fig. 3.4: Pressure distribution on the wing $(M = 0.8; \alpha = 0^{\circ})$

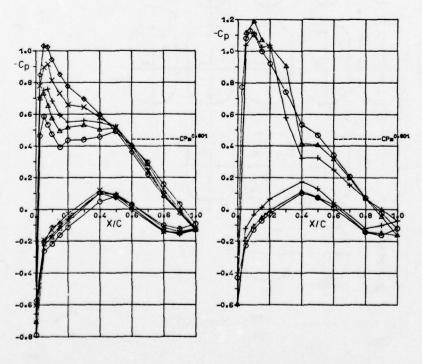


Fig. 3.5: Pressure distribution on the wing $(M = 0.8; \alpha = 2^{\circ})$

| | Synu | ors | |
|------|---------|-------|---------|
| left | diagram | right | diagram |
| 0 | HS | 0 | S5 |
| Δ | S1 | Δ | S6 |
| 4 | CO | 4 | 07 |

04 + ×0 S2 S3 S4

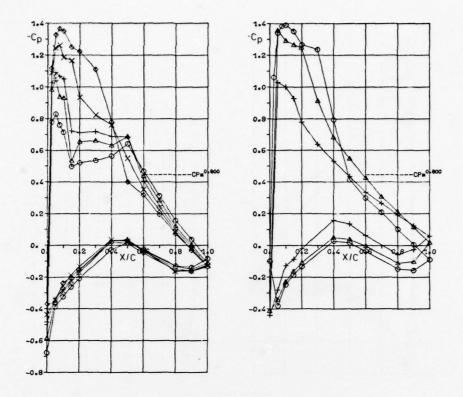
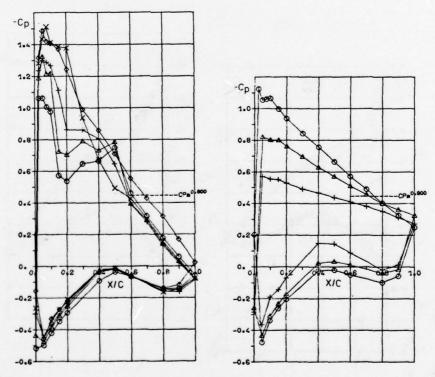


Fig. 3.6: Pressure distribution on the wing (M = 0.8; α = 4°)



Symbols

left diagram right diagram

| 0 | HS | 0 | S5 | |
|---|----|---|----|--|
| ۵ | S1 | Δ | S6 | |
| + | S2 | + | S7 | |
| | | | | |

x S3

♦ S4

Fig. 3.7: Pressure distribution on the wing (M = 0.8; α = 6°)

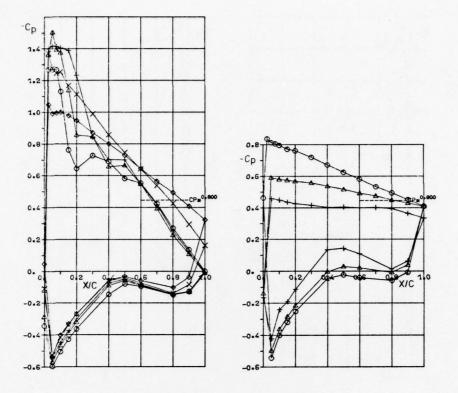


Fig. 3.8: Pressure distribution on the wing (M = 0.8; α = 8 $^{\circ}$)

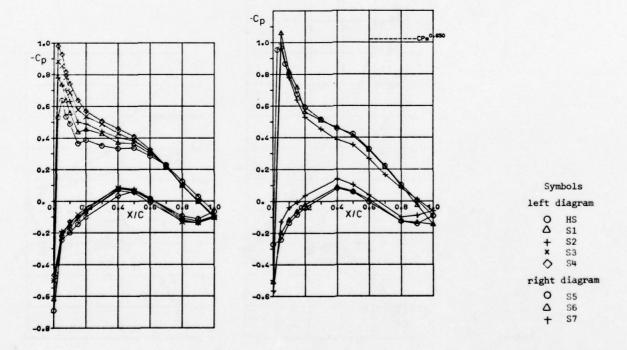


Fig. 3.9: Pressure distribution on the wing (M = 0.65; α = 2°)

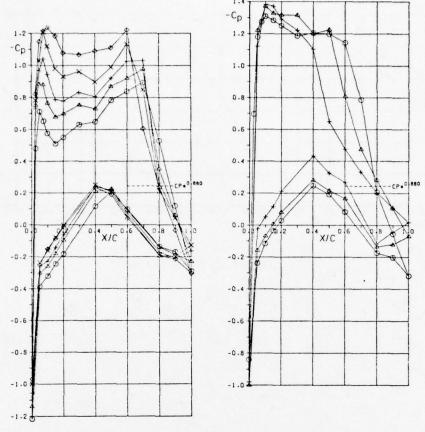


Fig. 3.10: Pressure distribution on the wing (M = 0.88; α = 2°)

Symbols left diagram

53

S6 S7

right diagram

O HS A S1 + S2

♦ 54

00

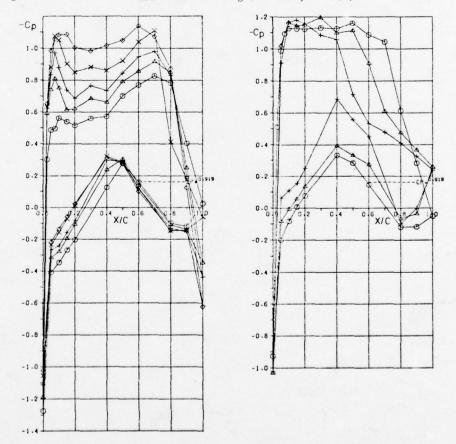


Fig. 3.11: Pressure distribution on the wing (M = 0.92; α = 2 $^{\circ}$)

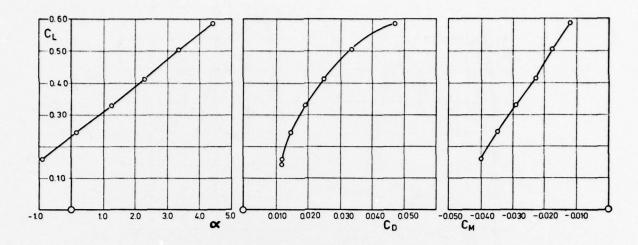


Fig. 3.12: Polars (M = 0.8)

4. PRESSURE DISTRIBUTION MEASURED IN THE RAE 8ft × 6ft TRANSONIC WIND TUNNEL ON RAE WING 'A' IN COMBINATION WITH AN AXI-SYMMETRIC BODY AT MACH NUMBERS OF 0.4, 0.8 AND 0.9

by

D. A. Treadgold, A. F. Jones and K. H. Wilson

Royal Aircraft Establishment, Farnborough, Hants, United Kingdom

1. INTRODUCTION

This contribution contains selected data from measurements of surface pressure distributions made in the RAE 8ft \times 6ft transonic wind tunnel on RAE research wing 'A' in combination with an axisymmetric body. Wing A is a wing of simple planform without dihedral or twist and is based on a uncambered RAE 101 aerofoil section. The tests were made on a complete model of a size that renders the tunnel wall interference relatively small. Although the test Reynolds number (one million based on the geometric mean chord) is low, it raises no particular problems for the cases presented here, since the adverse pressure gradients are mild and boundary-layer transition was controlled.

Tables and graphs of the pressure distribution on the wing and body are given for the conditions given below:

| Case number | Mach number | Angle of incidence |
|-------------|-------------|--------------------|
| 1 | 0.4 | 0 |
| 2 | 0.8 | 0 |
| 3 | 0.9 | 0 |
| 4 | 0.4 | 20 |
| 5 | 0.8 | 20 |
| 6 | 0.9 | 10 |

2. DATA SET

1. General description

| 1.1 | Model designation or name | RAE Wing A mounted symmetrically on the cylindrical body \mathbf{B}_2 ($\mathbf{W}_{\mathbf{A}}\mathbf{B}_2(0)0$) |
|-----|---|---|
| 1.2 | Model type (eg full span wing-body, semi-span wing) | Full-span wing-body model |
| 1.3 | Design requirements/conditions | Wing body model of simple geometric form |
| 1.4 | Additional remarks | |

Model geometry

| THE WOLL | | |
|----------|--|--|
| 2.1 Win | ng data | See Fig 4.1 |
| 2.1.1 | Wing planform | Swept wing with straight leading and trailing edges |
| 2.1.2 | Aspect ratio | Gross aspect ratio 6 (gross planform defined by the straight line extension of the leading and trailing edges to the body centre-line) |
| 2.1.3 | Leading-edge sweep | 36.65° |
| 2.1.4 | Trailing-edge sweep | 22.340 |
| 2.1.5 | Taper ratio | 1/3 |
| 2.1.6 | Twist | Zero |
| 2.1.7 | Mean aerodynamic chord | 152.4 mm (0.5 ft) |
| 2.1.8 | Span or semispan | 914.4 mm (3.00 ft) span |
| 2.1.9 | Number of airfoil sections used to define wing | One |
| 2.1.10 | Spanwise location of reference section and section coordinates (Note if ordinates are design or actual measured values) | Root and tip RAE 101 section thickness/chord ratio 9% See Table 4.1 |
| 2.1.11 | Lofting procedure between reference sections | Straight lines between root and tip stations at constant \mathbf{x}/\mathbf{c} |
| 2.1.12 | Form of wing-body fillet, strakes | No fillets or strakes fitted |
| 2.1.13 | Form of wing tip | Cross-section formed by a radius of half local wing thickness (see Fig 4.1) |
| | | |

Made with the property of the day of the property of the property of the party of t

- 2.2 Body data (detail description of body geometry)
- Axisymmetric body with a nose profile given by

$$\frac{R\left(\frac{\mathbf{x'}}{\ell^{\intercal}}\right)}{R_{0}\left(1\right)} = \frac{\ell^{\intercal}}{R_{0}} \left\{ \frac{1}{2} \frac{\mathbf{x'}}{\ell^{\intercal}} - \frac{3}{8} \left(\frac{\mathbf{x'}}{\ell^{\intercal}}\right)^{2} + \frac{1}{16} \left(\frac{\mathbf{x'}}{\ell^{\intercal}}\right)^{4} \right\},$$

$$\frac{\ell^{\intercal}}{R_{0}} = 5.33 , \qquad 0 < \frac{\mathbf{x'}}{\ell^{\intercal}} < 1$$

See Fig 4.1

1/6

Zero

Zero

- 2.3 Wing-body combination
 - 2.3.1 Relative body diameter (average body diameter at wing location divided by wing span)

2.3.2 Relative vertical location of wing (height above or below body axis divided by average body radius at wing location) Aligned with the axis of symmetry of the body

- 2.3.3 Wing setting angle
- 2.3.4 Dihedral
- 2.4 Cross sectional area development
- 2.5 Fabrication tolerances/waviness
- No 'area-rule' development simple wing with a cylindrical body

2.6 Additional remarks

In general the wing is within the specified manufacturing tolerance of ± 0.05 mm for the wing ordinates and the limit on waviness of 0.05 mm/25 mm. An inspection report is available on request

3. Wind tunnel

- 3.1 Designation
- 3.2 Type of tunnel
 - 3.2.1 Continuous or blowdown
 - 3.2.2 Stagnation pressure
- Continuous, closed circuit

RAE 8ft × 6ft transonic wind tunnel

- 10 to 355 kN/m^2 pumping and pressure shell limitation; for operationa limits due to power of main drive see section 3.6.1
- 3.2.3 Stagnation temperature

290 K to 323 K

- 3.3 Test section
 - 3.3.1 Shape of test section
 - 3.3.2 Size of test section (width, height, length)
 - 3.3.3 Type of test section walls closed, open, slotted, periorated Open area ratio (give range if variable)
 Slot/hole geometry (eg 30-degree slanted holes) treatment of side wall boundary layer

Rectangular with corner fillets (160.5 mm × 160.5 mm × 45°)

2.43 m wide, 1.83 m high, 2.8 m long

Slots in all four walls for three dimensional complete model tests. 11%

Sharp edged slots: six slots in both roof and floor and five slots in each side wall. All are vented to a common plenum chamber of large volume

Full span models Half-model testing

- 3.4 Flow field (empty test section)
 - 3.4.1 Reference static pressure
 - 3.4.2 Flow angularity

Plenum chamber

None

M 0.4 0.8 0.9 flow angularity ±0.13° ±0.13° ±0.07°

| 3.4 | | } ΔM ±0.002 ±0.002 ±0.003 |
|-------|--|---|
| 3.4 | .4 Pressure gradient | |
| 3.4 | .5 Turbulence/noise level | See Fig 3 of Ref 1 reproduced as Fig 6.3 in Data Set A6. |
| 3.4 | .6 Side wall boundary layer | |
| 3.5 | Freestream Mach number (or velocity) | |
| 3.5 | .1 Range | Mach number 0.40-1.24 |
| 3.5 | Pressures used to determine Mach number (eg settling chamber total pressure and plenum chamber pressure) | A total head measured in the maximum section of the tunnel circuit and a static pressure measured in the plenum chamber |
| 3.5 | .3 Accuracy of Mach number determination (ΔM) | ±0.001 |
| 3.5 | .4 Maximum Mach number variation in x, y, z-direction (empty tunnel; specify at what Mach number) | See section 3.4 |
| | Maximum variation of flow direction | |
| | Maximum Mach number variation during a run | ±0.001 |
| 3.6 | Reynolds number range | |
| 3.6 | Unit Reynolds number range. (Give range at representative Mach numbers; 1/m) | M 0.4 0.6 0.8 1.0 1.2 $\frac{R_e}{m} \times 10^{-6}$ 25-0.85 17-1.1 10-1.3 10-1.3 10-1.3 |
| 3.6 | .2 Means of varying Reynolds number (eg by pressurisation) | Pressurisation |
| 3.7 | Temperature range and dewpoint. Can temperature be controlled? | 290 K to 323 K. Absolute humidity $<\!0.003$. Temperature can be controlled manually |
| 3.8 | Model attitudes | |
| 3.8 | .i Angle of attack, yaw, roll | Calibrated differential screw-jacks giving a range of incidence from $-4^{\rm o}$ to $+22^{\rm o}$. The sting mounting may be rolled through $\pm 180^{\rm o}$ |
| 3.8 | .2 Accuracy in determining angles | Angle of attack $\pm 0.01^{\circ}$. Roll angle $\pm 0.10^{\circ}$ |
| 3.9 | Organization operating the tunnel and location of tunnel | The Royal Aircraft Establishment, Farnborough, Hants, England |
| 3.10 | Who is to be contacted for additional information | Mr D. Pierce, Aerodynamics Department |
| 3.11 | Literature concerning this facility | |
| 3.12 | Additional remarks | |
| Tests | | |
| 4.1 | Type of tests | Surface pressure measurements |
| 4.2 | Wing span of semispan to tunnel width | Span/tunnel width = 0.375 |
| 4.3 | Test conditions | |
| 4.3 | .1 Angle of attack | 0, 1° and 2° |
| 4.3 | •2 Mach number | 0.40, 0.80, 0.90 |
| 4.3 | 3.3 Dynamic pressure | Dependent on Mach number and temperature to give a constant Reynolds number |
| 4.3 | 8.4 Reynolds number | 1.0 \times 106 based on the geometric mean chord of the gross wing |
| 4.3 | .5 Stagnation temperature | ≈320 K |

4.4 Transition

4.4.1 Free or fixed

4.4.2 Position of free transition

4.4.3 Position of fixed transition, width of strips, size and type of roughness elements

4.4.4 Were checks made to determine if transition occurred at trip locations?

4.5 Bending or torsion under load

4.5.1 Describe any aeroelastic measurements made during tests

4.5.2 Describe results of any bench calibrations

4.6 Were different sized models used in wind-tunnel investigation? If so, indicate sizes

4.7 Areas and lengths used to form coefficients

4.8 References on tests

4.9 Related reports

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 Pressure orifices in wing.
Location and number on upper
and lower surfaces

5.1.2 Pressure orifices on fuselage. Location and number

5.1.3 Pressure orifices on components, give component and orifice location

5.1.4 Geometry of orifices

5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy

5.2 Force measurements

5.2.1 Type and location of balance

5.2.2 Forces and moments that can be measured. Maximum loads and accuracy

5.2.3 Forces and moments on components

Type and location of balance

Maximum load and accuracy

5.3 Boundary layer and flow-field measurements

Fixed

_

12.5%C and on the body nose Ballotini 120 grade 0.13 mm to 0.16 mm (0.005 in to 0.0064 in) diameter in a band 2.5 mm (0.1 in) wide

Yes. Acenaphthene sublimation

None made

Bench tests were made and a stiffness matrix determined - see additional remarks under section 6.2.6

No

Local chord. (The root chord in the case of the body junction.) Logal pitching moments are quoted about the local leading edge

_

206 (see Fig 4.1 and Table 4.2a)

213 (see Fig 4.1 and Table 4.2b)

Hole diameter Depth/diameter Location

0.34 mm (0.0135 in) 1.5 to x/c of 0.1

0.34 mm (0.0135 in) 3.0 from x/c 0.15 to 0.90

0.25 mm (0.0100 in) 1.0 for x/c 0.95 and 0.975

Midwood self-balancing capsule manometer 0-1.0 atmosphere. Accuracy $\pm 0.03\%$ of full scale

No balance measurements made

- 5.3.1 Boundary-layer probe, type, position, and drive mechanism
- 5.3.2 Probe dimension relative to boundary-layer thickness
- 5.3.3 Laser-Doppler velocimeter.
 Give description of apparatus
 and accuracy
- 5.3.4 Method and/or instrument used to determine boundary-layer transition
- 5.3.5 Describe any downstream rakes or probes used. Reason for use.
- 5.4 Surface flow visualization
 - 5.4.1 Indicate method used to determine
 - Streamline pattern
 - Boundary-layer transition
 - 5.4.2 Accuracy of method
- 5.5 Skin friction measurements
 - 5.5.1 Type of instrument
 - 5.5.2 Geometry and accuracy of instrument
 - 5.5.3 Locations where probe used
- 5.6 Simulation of exhaust jet
 - 5.6.1 Describe ducting of air
- 5.7 Additional remarks

6. Data

- 6.1 Accuracy
 - 6.1.1 Pressure coefficients
 - 6.1.2 Aerodynamic coefficients
 - 6.1.3 Boundary layer and wake quantities
 - 6.1.4 Repeatability
 - 6.1.5 Additional remarks
- 6.2 Wall interference corrections
 - 6.2.1 Solid and wake blockage.
 Give procedures and equations
 - 6.2.2 Give blockage factors as functions of Mach number
 - 6.2.3 Downwash, streamline curvature and lift interference. Give procedure and equations
 - 6.2.4 Give lift interference parameters as function of Mach number

No boundary-layer or flow-field measurements made

Oil flow

Acenaphthene sublimation tests made in a few cases

No measurements made

±0.01 in general (see section 6.1.5)

- (a) Because of the high sensitivity of the pressure to position near the leading edge and to the non-uniformity of the tunnel airstream, there are apparent errors for the nominal x/c = 0 tappings that are in excess of the tolerance quoted in section 6.1.1
- (b) Spurious values of the pressure coefficients given at some points on the body should be ignored. These are the result of some malfunctioning of the digitising equipment during the tests

None applied

None applied

Corrections for flow angularity in the tunnel have been made by appeal to model symmetry. Details of constraint and aeroelastic correction are given in section 6.2.6

See section 6.2.6

6.2.5 Reference on wall-interference corrections

See Ref 2

6.2.6 Additional remarks

The corrections required for aeroelastic distortion of the model and for the effects of tunnel wall constraint are of a similar order of magnitude. matrix of influence coefficients defining the structural stiffness has been derived from the measurement of deflection under known static loads. The aeroelastic distortion has then been calculated using the stiffness matrix, together with the aero-dynamic loading obtained by integrating the measured pressure distribution. Correction for tunnel wall constraint has been derived by interpolation with respect to open area ratio 1/(1 + F), between solutions of the linearised formulation for the velocity induced in the given test section according to the assumption of (a) fully open, and (b) fully closed, wall boundary conditions². Computation of the incremental loading arising from distortion and constraint confirmed that only spanwise variation was significant and therefore a local correction to the nominal incidence of an 'equivalent flat wing' was obtained as indicated in Table 4.3a and 4.3b. The adjustments to the measured data have been made by curve-fitting the variation of static pressure coefficient at each orifice with incidence, and interpolating to a corrected nominal incidence

6.3 Data presentation

6.3.1 Aerodynamic coefficients

Tables 4.7 to 4.9 give local normal force $\,\,{\rm C}_{{\rm N}}^{}\,\,$ and pitching moment coefficient $\,\,{\rm C}_{{\rm M}}^{}\,\,$

6.3.2 Surface pressure coefficients

Tables 4.4 to 4.9 Figs 4.2 to 4.7 give pressure coefficients for the wing and body

6.3.3 Flow conditions for

- Aerodynamic coefficient data

Mach numbers 0.4, 0.6 and 0.8 for R_e 1.0 × 10⁶

- Pressure data

6.3.4 Boundary layer and/or wake data

No measurements made

6.3.5 Flow conditions for boundary layer and/or wake data

6.3.6 Wall interference corrections included?

See Table 4.3a

6.3.7 Aeroelastic corrections included?

See section 6.2.6 and Table 4.3b

2110234041

6.3.8 Other corrections?

6.3.9 Additional remarks

6.4 Were tests carried out in different facilities on the current model? If so, what facilities. Are data included in present data base?

6.5 Were tests carried out in different facilities on the current model? If so, what facilities. Are data included in present data base? No

7. References

D.G. Mabey
Boundary-layer transition measurements on the AEDC 10° cone in three RAE wind tunnels and their implications.
RAE Technical Report 76077 (1976)

H.C. Garner
E.W.E. Rogers
W.E.A. Acum
E.C. Maskell

Subsonic wind tunnel wall corrections. AGARDograph 109 (1966)

```
8.
      List of Symbols
```

- local chord C
- ē geometric mean chord of the gross wing
- local pitching moment coefficient about the leading edge = $\frac{\text{local pitching moment}}{\frac{1}{2}\rho V^2 c^2}$
- local normal force coefficient = local normal force C_N
- pressure coefficient = $\frac{p p_{\infty}}{\frac{1}{2}\rho V^2}$ $C_{\mathbf{p}}$
- non-dimensional slotted wall parameter = $\frac{d}{\sqrt{\pi bh}} \log_e \csc \frac{\pi a}{2d}$, (see Ref 2) F
- length of the body L
- M Mach number
- local body cross-section radius
- Reynolds number based on \bar{c}
- R_{0} radius of the cylindrical section of the body
- semi-span of the gross wing (excluding tip fairing)
- free stream velocity V
- X distance measured along the chord from the leading-edge of the wing section
- distance measured from the extended nose of the body X'
- distance measured spanwise
- Z distance from the plane of the wing
- width of the slots in the tunnel walls
- breadth of the tunnel working section
- periodic spacing of the slots in the tunnel wall
- height of the tunnel working section
- length of the profiled portion of the body
- local static pressure P
- free stream static pressure
- angle of incidence
- correction applied to the local angle of incidence for wind tunnel wall constraint Δca
- correction applied to the local angle of incidence for aeroelastic distortion of the model and deflection of the sting support
- Y/S non-dimensional spanwise location η
- density of the free stream
- median angle measured from the plane of the wing

Table 4.1

CO-ORDINATES OF RAE 101 T/C = 0.09 SECTION

| х | 100Y | Х | 100Y |
|--------|--------|--------|--------|
| 0.0 | 0.0 | 0.35 | 4.4582 |
| 0.001 | 0.3515 | 0.36 | 4.4376 |
| 0.002 | 0.4966 | 0.38 | 4.3855 |
| 0.003 | 0.6078 | 0.4 | 4.3205 |
| 0.004 | 0.7013 | 0.42 | 4.2438 |
| 0.005 | 0.7835 | 0.44 | 4.1565 |
| 0.006 | 0.8576 | 0.45 | 4.1091 |
| 0.007 | 0.9256 | 0.46 | 4.0595 |
| 0.0075 | 0.9578 | 0.48 | 3.9539 |
| 0.008 | 0.9888 | 0.5 | 3.8403 |
| 0.009 | 1.0480 | 0.52 | 3.7196 |
| 0.01 | 1.1039 | 0.54 | 3.5924 |
| 0.012 | 1.2074 | 0.55 | 3.5265 |
| 0.0125 | 1.2318 | 0.56 | 3.4592 |
| 0.014 | 1.3022 | 0.58 | 3.3209 |
| 0.016 | 1.3901 | 0.6 | 3.1779 |
| 0.018 | 1.4721 | 0.62 | 3.0308 |
| 0.02 | 1.5494 | 0.64 | 2.8803 |
| 0.025 | 1.7257 | 0.65 | 2.8039 |
| 0.03 | 1.8832 | 0.66 | 2.7267 |
| 0.035 | 2.0262 | 0.68 | 2.5707 |
| 0.04 | 2.1577 | 0.7 | 2.4126 |
| 0.05 | 2.3903 | 0.72 | 2.2531 |
| 0.06 | 2.6008 | 0.74 | 2.0926 |
| 0.07 | 2.7863 | 0.75 | 2.0121 |
| 0.075 | 2.8722 | 0.76 | 1.9317 |
| 0.08 | 2.9540 | 0.78 | 1.7707 |
| 0.09 | 3.1067 | 0.8 | 1.6097 |
| 0.1 | 3.2466 | 0.82 | 1.4487 |
| 0.12 | 3.4938 | 0.84 | 1.2878 |
| 0.14 | 3.7046 | 0.85 | 1.2073 |
| 0.15 | 3.7982 | 0.86 | 1.1268 |
| 0.16 | 3.8847 | 0.88 | 0.9658 |
| 0.18 | 4.0380 | 0.9 | 0.8049 |
| 0.2 | 4.1674 | 0.92 | 0.6439 |
| 0.22 | 4.2746 | 0.925 | 0.6036 |
| 0.24 | 4.3610 | 0.94 | 0.4829 |
| 0.25 | 4.3966 | 0.95 | 0.4024 |
| 0.26 | 4.4271 | 0.96 | 0.3219 |
| 0.28 | 4.4730 | 0.975 | 0.2012 |
| 0.3 | 4.4972 | 0.98 | 0.1610 |
| 0.32 | 4.4960 | 0.9875 | 0.1006 |
| 0.34 | 4.4752 | 1.0 | 0.0 |

| Nominal | n = Y/S | | | | | | |
|---------|---------|-------|-------|-------|-------|-------|--|
| x/c | 0.25 | 0.40 | 0.60 | 0.75 | 0.85 | 0.925 | |
| 0.005 | 0.005 | 0.005 | _ | _ | _ | _ | |
| 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.011 | 0.011 | |
| 0.025 | 0.025 | 0.025 | 0.026 | 0.025 | 0.026 | 0.026 | |
| 0.050 | 0.051 | 0.050 | 0.051 | 0.050 | 0.052 | 0.051 | |
| 0.075 | 0.075 | 0.075 | 0.076 | 0.075 | 0.076 | 0.076 | |
| 0.100 | 0.100 | 0.100 | 0.100 | 0.100 | 0.101 | 0.101 | |
| 0.150 | 0.151 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | |
| 0.200 | 0.201 | 0.200 | 0.200 | 0.200 | 0.201 | 0.200 | |
| 0.300 | 0.301 | 0.300 | 0.300 | 0.301 | 0.301 | 0.301 | |
| 0.400 | 0.401 | 0.400 | 0.400 | 0.401 | 0.401 | 0.400 | |
| 0.500 | 0.501 | 0.500 | 0.500 | 0.501 | 0.501 | 0.500 | |
| 0.600 | 0.601 | 0.600 | 0.601 | 0.601 | 0.600 | 0.601 | |
| 0.700 | 0.701 | 0.700 | 0.701 | 0.701 | 0.701 | 0.700 | |
| 0.800 | 0.801 | 0.800 | 0.801 | 0.801 | 0.800 | 0.800 | |
| 0.900 | 0.900 | 0.899 | 0.899 | 0.899 | 0.899 | 0.899 | |
| 0.950 | 0.950 | 0.949 | 0.949 | 0.950 | 0.949 | 0.949 | |
| 0.975 | 0.976 | 0.974 | - | - | - | - | |

(b) Location of the pressure tappings in the wing-body junction

| X/C* | -0.013 | 0.010 | 0.025 | 0.050 | 0.075 | 0.100 | 0.150 |
|---------------------|----------------------------|----------------------------|---------|---------|---------|---------|---------|
| X'/L | 0.4817 | 0.4856 | 0.4881 | 0.4924 | 0.4968 | 0.5011 | 0.5097 |
| Z/L | 0 | 0.00277 | 0.00392 | 0.00509 | 0.00585 | 0.00664 | 0.00756 |
| X/C* | 0.200 | 0.250 | 0.300 | 0.400 | 0.500 | 0.600 | 0.700 |
| X'/L | 0.5184 | 0.5271 | 0.5358 | 0.5532 | 0.5707 | 0.5882 | 0.6056 |
| Z/L | 0.00822 | 0.00860 | 0.00876 | 0.00840 | 0.00759 | 0.00639 | 0.00517 |
| X/C* X'/L Z/L | 0.800 0.6231 0.00356 | 0.900 0.6405 0.00226 | | | | | |

* X and C appropriate to the normal projection onto the gross wing defined by the straight extension of the leading- and trailing-edges to the centre-line of the body.

Table 4.3

(a) Corrections applied to the local angle of incidence for tunnel wall constraint $\Delta_c \alpha \ = \ \Delta_c \alpha(0) \ + \ \Delta_c \alpha(\eta)/\text{per degree}$

| М | Δ α(0) | | | $\Delta_{c}^{\alpha(\eta)}$ | | | | |
|----------------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| М | L _c u(0) | η < 0.167 | n = 0.25 | η = 0.40 | η = 0.60 | η = 0.75 | η = 0.85 | η = 0.925 |
| 0.40 0.80 0.90 | -0.0223 -0.0220 -0.0218 | 0.00000 0.00000 0.00000 | -0.00040 -0.00101 -0.00158 | -0.00063 -0.00130 -0.00219 | -0.00088 -0.00189 -0.00313 | -0.00097 -0.00230 -0.00390 | -0.00111 -0.00249 -0.00431 | -0.00114 -0.00263 -0.00461 |

(b) Corrections applied to the local angle of incidence for the aero-elastic deformation of the wing and the deflection of the sting support

$$\Delta_{e^{\alpha}} = \Delta_{e^{\alpha}} (0) + \Delta_{e^{\alpha}} (\eta)/\text{per degree at Re } 1.0 \times 10^{6}$$

| 0.60 n = 0.75 n = 0.85 n = 0.925 |
|---|
| 1.00 1 - 0.75 1 - 0.85 1 - 0.923 |
| 00 -0.0080 -0.0095 -0.0104 |
| 54 -0.0198 -0.0230 -0.0252 -0.0237 -0.0277 -0.0301 |
| |

Table 4.4
TABULATED DATA

Case No.1 : Mach number 0.40

Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

| η | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | - | - | * - | | - | - | - |
| CM= | | | _ | - | - | - | |
| X/C | CP |
| 0.000 | | 0.651 | 0.636 | 0.639 | 0.643 | 0.622 | 0.634 |
| 0.005 | | 0.205 | 0.174 | | | | |
| 0.010 | 0.222 | 0.057 | 0.016 | 0.031 | 0.050 | 0.030 | 0.031 |
| 0.025 | 0.140 | -0.102 | -0.118 | -0.137 | -0.120 | -0.137 | -0.144 |
| 0.050 | 0.043 | -0.147 | -0.206 | -0.206 | -0.209 | -0.210 | -0.219 |
| 0.075 | -0.019 | -0.197 | -0.238 | -0.246 | -0.225 | -0.244 | -0.235 |
| 0.100 | -0.053 | -0.197 | -0.244 | -0.253 | -0.244 | -0.254 | -0.240 |
| 0.150 | -0.112 | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.132 | -0.223 | -0.269 | -0.271 | -0.289 | -0.259 | -0.270 |
| 0.300 | -0.184 | -0.250 | -0.277 | -0.269 | -0.278 | -0.273 | -0.262 |
| 0.400 | -0.187 | -0.211 | -0.229 | -0.228 | -0.239 | -0.222 | -0.220 |
| 0.500 | -0.166 | -0.173 | -0.179 | -0.176 | -0.174 | -0.168 | -0.165 |
| 0.600 | -0-136 | -0.129 | -0.129 | -0.124 | -0.126 | -0.114 | **** |
| 0.700 | -0.103 | -0.085 | -0.078 | -0.074 | -0.073 | -0.065 | -0.060 |
| 0.800 | -0.068 | -0.042 | -0.028 | -0.027 | -0.029 | -0.021 | -0.014 |
| 0.900 | -0.033 | 0.004 | 0.019 | **** | 0.022 | 0.025 | 0.035 |
| 0.950 | | 0.043 | 0.057 | 0.056 | 0.055 | 0.061 | 0.062 |
| 0.975 | | 0.068 | 0.076 | | | | |

^{*} Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| ♦ DEG | 0* | ± 15 | ± 30 | ± 45 | ± 60 | ± 75 | ± 90 |
|-------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| x/L | СР | СР | СР | СР | СР | СР | CP |
| 0.268 | -0.124 | -0.128 | -0.126 | -0.126 | -0.125 | -0.128 | -0.125 |
| | -0.087 | -0.090 | -0.088 | -0.088 | -0.087 | -0.088 | -0.089 |
| 0.366 | -0.039 -0.033 | -0.040 -0.031 | -0.044 -0.036 | -0.044 | -0.048 -0.037 | -0.050 -0.042 | -0.046 -0.036 |
| 0.405 | -0.021 | -0.020 | -0.023 | -0.026 | -0.033 | -0.033 | -0.034 |
| | -0.007 | -0.010 | -0.013 | -0.021 | -0.030 | -0.030 | -0.032 |
| 0.444 | 0.011 | -0.003 0.038 | -0.007 0.005 | -0.019 -0.015 | -0.021 -0.024 | -0.034 -0.031 | -0.032 -0.026 |
| 0.482 | 0.290 | 0.063 | 0.002 | -0.019 -0.027 | -0.027 -0.032 | -0.031 -0.033 | -0.034 -0.034 |
| 0.501 | -0.054 | -0.032 | -0.029 | -0.031 | -0.033 | -0.038 | -0.037 |
| | -0.112 | -0.076 | -0.046 | -0.039 | -0.032 | -0.043 | -0.035 |
| 0.518 | -0.133 | -0.109 | -0.071 | -0.050 | -0.042 | -0.041 | -0.039 |
| | -0.170 | -0.132 | -0.062 | -0.058 | -0.046 | -0.051 | -0.043 |
| 0.571 | -0.166 | -0.138 | -0.102 | -0.073 | -0.059 | -0.051 | -0.050 |
| 0.588 | -0.137 | -0.122 | -0.094 | -0.064 | -J.052 | -0.046 | -0.049 |
| 0.606 | -0.104 -0.069 | -0.096 -0.067 | -0.069 -0.059 | -0.062 -0.051 | -J.054 -J.046 | -0.042 -0.037 | -0.044 |
| 0.660 | -0.033 | -0.034 | -0.043 | -0.039 | -0.040 | -0.037 | -0.037 |
| | 0.073 | -0.001 | -0.026 | -0.030 | -0.032 | -0.032 | -0.029 |
| 0.671 | 0.038 0.018 | 0.012 | -0.016 -0.010 | -0.025 -0.023 | -0.030 -0.025 | -0.031 -0.024 | -0.033 -0.028 |
| 0.730 | -0.004 -0.018 | 0.003 | -0.010 -0.017 | -0.022 -0.033 | -0.021 -0.024 | -0.030 -0.027 | -0.027 -0.025 |
| 0.769 | -0.013 | -0.025 | -0.023 | -0.027 | -0.026 | -0.025 | -0.026 |
| | -0.014 | -0.017 | -0.018 | -0.019 | -0.030 | -0.029 | -0.027 |
| 0.808 | -0.022 | -0.024 | -0.021 | -0.033 | -0.026 | -0.027 | -0.031 |
| | -0.028 | -0.039 | -0.030 | -0.026 | -0.028 | -0.035 | -0.024 |

Table 4.5
TABULATED DATA

Case No.2 : Mach number 0.80 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

| η | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | | - | - | - | - | | - |
| CM= | - | - | - | - | | - | - |
| X/C | CP |
| 0.000 | | 0.729 | 0.688 | 0.691 | 0.691 | 0.666 | 0.682 |
| 0.005 | | 0.309 | 0.252 | | | | |
| 0.010 | 0.305 | 0.154 | 0.083 | 0.095 | 0.110 | 0.088 | 0.074 |
| 0.025 | 0.236 | -0.033 | -0.084 | -0.112 | -0.099 | -0.117 | -0.134 |
| 0.050 | 0.132 | -0.126 | -0.204 | -0.217 | -0.228 | -0.224 | -0.254 |
| 0.075 | 0.050 | -0.172 | -0.255 | -0.271 | -0.258 | -0.273 | -0.283 |
| 0.100 | -0.001 | -0.190 | -0.269 | -0.294 | -0.292 | -0.303 | -0.308 |
| 0.150 | **** | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.123 | -0.251 | -0.330 | -0.338 | -0.378 | -0.343 | -0.388 |
| 0.300 | -0.218 | -0.304 | -0.352 | -0.360 | -0.368 | -0.359 | -0.362 |
| 0.400 | -0.238 | -0.269 | -0.297 | -0.286 | -0.302 | -0.283 | -0.284 |
| 0.500 | -0.220 | -0.218 | -0.223 | -0.210 | -0.211 | -0.198 | -0.189 |
| 0.600 | -0.182 | -0.159 | -0.151 | -0.133 | -0.138 | -0.120 | -0.101 |
| 0.700 | -0.142 | -0.100 | -0.081 | -0.066 | -0.066 | -0.053 | -0.039 |
| 0.500 | -0.086 | -0.041 | -0.013 | -0.004 | -0.008 | 0.007 | 0.016 |
| 0.900 | -0.030 | 0.023 | 0.048 | 0.075 | 0.059 | 0.067 | 0.074 |
| 0.950 | | 0.062 | 0.087 | 0.097 | 0.094 | 0.102 | 0.103 |
| 0.975 | | 0.092 | 0.110 | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| ♦ DEG | 0* | ± 15 | ± 30 | ± 45 | ± 60 | ± 75 | ± 90 |
|-------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | | | | | |
| x'/L | CP |
| 0.248 | 2 1/7 | 2.140 | 0.140 | 0.145 | 2 1/5 | 0.1/7 | 2 147 |
| 0.268 | -0.147 -0.095 | -0.148 -0.098 | -0.148 -0.097 | -0.145 | -0.145 -0.098 | -0.147 -0.097 | -0.147 -0.098 |
| 0.366 | -0.025 | -0.098 | -0.025 | -0.098 -0.039 | -0.031 | -0.028 | -0.028 |
| 0.385 | | | | | | | -0.028 |
| 0.405 | -0.015 | -0.013 | -0.017 | -0.017 | -0.021 | -0.021 | |
| 0.424 | -0.001 0.085 | 0.014 | -0.003 0.010 | -0.006 | -0.010 -0.003 | -0.011 -0.003 | -0.001 |
| | 100 | | | | | | |
| 0.444 | 0.039 | 0.033 | 0.024 | 0.013 | 0.008 | -0.003 | 0.001 |
| 0.463 | 0.106 | 0.082 | 0.046 | | | 0.001 | |
| 0.462 | 0.342 | 0.134 | 0.055 | 0.020 | 0.006 | -0.004 | -0.007 |
| 0.492 | 0.132 | 0.084 | 0.036 | 0.010 | -0.002 | -0.009 | -0.011 -0.017 |
| 0.501 | -0.001 | 0.009 | 0.005 | -0.004 | -0.011 | -0.024 | |
| 0.510 | -0.089 | -0.055 | -0.028 | -0.022 | -0.021 | -0.031 | -0.021 |
| 0.518 | -0.126 | -0.101 | -0.062 | -0.040 | -0.032 | -0.038 | -0.031 |
| 0.527 | -0.179 | -0.141 | -0.090 | -0.058 | -0.045 | -0.047 | -0.038 |
| 0.536 | -0.218 | -0.167 | -0.113 | -0.074 | -0.056 | -0.060 | -0.044 |
| 0.553 | -0.238 | -0.195 | -0.139 | -0.094 | -0.073 | -0.069 | -0.058 |
| 0.571 | -0.220 | -0.188 | -0.143 | -0.104 | -0.082 | -0.068 | -0.064 |
| 0.588 | -0.182 | -0.161 | -0.128 | -0.093 | -0.079 | -0.060 | -0.063 |
| 0.606 | -0.142 | -0.069 | -0.106 | -0.084 | -0.071 | -0.050 | -0.059 |
| 0.623 | -0.086 | -0.082 | -0.077 | -0.064 | -0.058 | -0.039 | -0.048 |
| 0.641 | -0.030 | -0.033 | -0.042 | -0.041 | -0.041 | -0.028 | -0.039 |
| 0.660 | 0.097 | 0.021 | -0.008 | -0.018 | -0.024 | -0.017 | -0.022 |
| 0.671 | 0.070 | 0.033 | 0.004 | -0.009 | -0.015 | -0.015 | -0.020 |
| 0.691 | 0.046 | 0.028 | 0.014 | -0.001 | -0.008 | -0.002 | -0.013 |
| 0.730 | 0.018 | 0.012 | 0.008 | 0.002 | -0.004 | -0.007 | -0.007 |
| 0.750 | 0.009 | 0.007 | -0.031 | -0.002 | -0.002 | -0.004 | -0.004 |
| 0.769 | 0.005 | 0.003 | -0.002 | -0.003 | -0.003 | -0.006 | -0.004 |
| 0.789 | 0.004 | -0.000 | -0.001 | -0.002 | -0.003 | -0.008 | -0.007 |
| 0.308 | -0.003 | -0.004 | -0.004 | -0.004 | -0.007 | -0.009 | -0.011 |
| 0.828 | -0.002 | -0.031 | -0.008 | -0.009 | -0.009 | -0.011 | -0.009 |

Table 4.6
TABULATED DATA

Case No.3 : Mach number 0.90 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

| n | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | _ | - | - | _ | - | - | - |
| CM= | _ | _ | | _ | | - | _ |
| X/C | CP |
| 0.000 | | 0.766 | 0.714 | 0.699 | 0.706 | 0.674 | 0.702 |
| 0.005 | | 0.360 | 0.295 | | | | |
| 0.010 | 0.357 | 0.207 | 0.133 | 0.118 | 0.120 | 0.110 | -0.149 |
| 0.025 | 0.299 | 0.017 | -0.042 | -0.097 | -0.097 | -0.105 | -0.106 |
| 0.050 | 0.201 | -0.081 | -0.174 | -0.219 | -0.241 | -0.231 | -0.244 |
| 0.075 | 0.119 | -0.134 | -0.235 | -0.289 | -0.278 | -0.292 | -0.283 |
| 0.100 | 0.066 | -0.156 | -0.255 | -0.323 | -0.309 | -0.334 | -0.316 |
| 0.150 | **** | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.078 | -0.246 | -0.355 | -0.431 | -0.480 | -0.442 | -0.480 |
| 0.300 | -0.194 | -0.341 | -0.457 | -0.535 | -0.535 | -0.493 | -0.509 |
| 0.400 | -0.258 | -0.338 | -0.455 | -0.409 | -0.358 | -0.333 | -0.409 |
| 0.500 | -0.278 | -0.329 | -0.310 | -0.212 | -0.218 | -0.217 | -0.152 |
| 0.630 | -0.260 | -0.244 | -0.164 | -0.130 | -0.132 | -0.117 | -0.048 |
| 0.700 | -0.197 | -0.135 | -0.075 | -0.052 | -0.051 | -0.033 | 0.008 |
| 0.800 | -0.107 | -0.052 | 0.004 | 0.017 | 0.015 | 0.036 | 0.062 |
| 0.900 | -0.032 | 0.029 | 0.072 | **** | 0.087 | 0.099 | 0.117 |
| 0.950 | | 0.001 | 0.114 | 0.123 | 0.122 | 0.138 | 0.156 |
| 0.975 | | 0.113 | 0.138 | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| Φ ĎEG | 0* | ± 15 | ± 30 | ± 45 | ± 60 | ± 75 | ± 90 |
|-------|--------|---------|--------|--------|--------|--------|--------|
| x/L | CP | CP | СР | CP | CP | CP | CP |
| ^/_ | Cr | Cr | Cr | Cr | CF | Cr | |
| 0.268 | -0.162 | -0.165 | -0.164 | -0.167 | -0.153 | -0.162 | -0.164 |
| 0.307 | -0.096 | -0.096 | -0.097 | -0.093 | -0.097 | -0.113 | -0.093 |
| 0.366 | -0.014 | -0.014 | -0.013 | -0.015 | -0.016 | -0.019 | -0.018 |
| 0.385 | -0.001 | 0.002 | -0.002 | -0.003 | -0.003 | -0.004 | -0.001 |
| 0.405 | 0.016 | 0.014 | 0.014 | 0.012 | 0.009 | 0.007 | 0.008 |
| 0.424 | 0.176 | 0.035 | 0.030 | 0.028 | 0.019 | 0.020 | 0.017 |
| 0.444 | 0.060 | 0.055 | 0.048 | 0.035 | 0.037 | 0.022 | 0.025 |
| 0.463 | 0.139 | 0.117 | 0.081 | 0.057 | 0.040 | 0.030 | 0.029 |
| 0.482 | 0.374 | 0.180 | 0.099 | 0.058 | 0.039 | 0.028 | 0.026 |
| 0.492 | 0.202 | 0.135 | 0.084 | 0.048 | 0.032 | 0.021 | 0.018 |
| 0.501 | 0.066 | 0.057 | 0.051 | 0.033 | 0.021 | -0.000 | 0.009 |
| 0.510 | -0.032 | -0.012 | 0.014 | 0.010 | 0.006 | -0.013 | 0.002 |
| 0.518 | -0.078 | -0.068 | -0.022 | -0.014 | -0.010 | -0.026 | -0.012 |
| 0.527 | -0.142 | -0.116 | -0.063 | -0.043 | -0.030 | -0.044 | -0.026 |
| 0.536 | -0.194 | -0.154 | -0.100 | -0.067 | -0.049 | -0.074 | -0.041 |
| 0.553 | -0.258 | -0.219 | -0.153 | -0.110 | -0.086 | -0.101 | -0.070 |
| 0.571 | -0.278 | -0.247 | -0.191 | -0.147 | -0.116 | -0.111 | -0.095 |
| 0.588 | -0.260 | -0.237 | -0.195 | -0.151 | -0.124 | -0.099 | -0.107 |
| 0.606 | -0.197 | -0.185 | -0.160 | -0.134 | -0.111 | -0.076 | -0.096 |
| 0.623 | -0.107 | -0.111. | -0.104 | -0.091 | -0.084 | -0.051 | -0.073 |
| 0.641 | -0.032 | -0.037 | -0.051 | -0.050 | -0.051 | -0.023 | -0.051 |
| 0.660 | 0.111 | 0.033 | 0.001 | -0.011 | -0.020 | -0.013 | -0.022 |
| 0.671 | 0.092 | 0.052 | 0.020 | 0.004 | -0.007 | -0.002 | -0.013 |
| 0.691 | 0.071 | 0.049 | 0.035 | 0.017 | 0.008 | 0.004 | 0.001 |
| 0.730 | 0.042 | -0.000 | 0.027 | 0.021 | 0.017 | 0.015 | 0.011 |
| 0.750 | 0.030 | 0.029 | 0.024 | 0.016 | 0.020 | 0.014 | 0.014 |
| 0.769 | 0.025 | 0.022 | 0.017 | 0.017 | 0.014 | 0.014 | 0.017 |
| 0.789 | 0.025 | 0.019 | 0.018 | 0.017 | 0.013 | 0.007 | 0.009 |
| 0.808 | 0.014 | 0.013 | 0.016 | 0.011 | 0.012 | 0.006 | 0.007 |
| 0.828 | 0.012 | -0.012 | 0.006 | 0.008 | 0.008 | 0.005 | 0.008 |

Table 4.7
TABULATED DATA

Case No.4 : Mach number 0.40

Angle of incidence 2.00

Upper surface

Pressures on the wing and at the wing/body junction

| n | J.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | 0.138 | 0.162 | 0.172 | 0.186 | 0.191 | 0.183 | 0.165 |
| CM= | -0.043 | -0.042 | -0.042 | -0.046 | -0.047 | -0.041 | -0.034 |
| X/C | CP | CP | CP | CF | CP | CP | CF |
| 0.000 | | 0.515 | 0.453 | 0.457 | 0.444 | U.406 | 0.415 |
| 0.005 | | -0.311 | -0.449 | | | | |
| 0.010 | 0.046 | -0.415 | -0.525 | -0.554 | -0.553 | -0.578 | -0.574 |
| 0.025 | -0.048 | -0.463 | -0.525 | -0.577 | -0.576 | -0.596 | -0.598 |
| 0.050 | -0.143 | -0.436 | -0.511 | -0.536 | -0.550 | -0.554 | -0.558 |
| 0.075 | -0.189 | -0.417 | -0.486 | -0.509 | -3.502 | -0.522 | -0.507 |
| 0.100 | -0.209 | -0.389 | -0.456 | -0.481 | -0.478 | -0.496 | -0.476 |
| 0.150 | -0.248 | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.253 | -0.347 | -0.405 | -0.415 | -0.443 | -0.404 | -0.402 |
| 0.300 | -0.277 | -0.344 | -0.374 | -0.373 | -0.392 | -0.378 | -0.354 |
| 0.400 | -0.251 | -0.284 | -0.306 | -0.310 | -0.321 | -0.304 | -0.285 |
| 0.500 | -0.225 | -0.229 | -0.236 | -0.235 | -0.230 | -0.226 | -0.207 |
| 0.600 | -0.182 | -0.171 | -0.172 | -0.167 | -0.171 | -0.153 | **** |
| 0.70 | -0.139 | -0.117 | -0.107 | -0.106 | -0.104 | -0.094 | -0.076 |
| 0.800 | -0.094 | -0.065 | -0.046 | -0.048 | -0.050 | -0.037 | -0.024 |
| 0.900 | -0.046 | -6.007 | 0.010 | **** | 0.013 | 0.017 | 0.031 |
| 0.950 | | 0.035- | 0.051 | 0.046 | 0.050 | 0.069 | 0.060 |
| 0.975 | | 0.062 | 0.076 | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| ♦ DEG | ∪* | 15 | 30 | 45 | 60 | 75 | 90 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| | | | | | | | |
| x1/L | CP | CP | CP | СР | СР | СР | CP |
| 0.268 | -0.128 | -0.134 | -0.136 | -0.134 | -0.137 | -0.136 | -0.136 |
| 0.307 | -0.093 | -0.095 | -0.097 | -0.096 | -0.097 | -0.098 | -0.136 |
| 0.366 | -0.051 | -0.052 | -0.057 | -0.052 | -0.058 | -0.060 | -0.055 |
| 0.385 | -0.041 | -0.039 | -0.046 | -0.049 | -0.050 | -0.052 | -0.050 |
| 0.405 | -0.029 | -0.032 | -0.036 | -0.042 | -0.046 | -0.047 | -0.047 |
| 0.424 | -0.014 | -0.021 | -0.031 | -0.037 | -0.041 | -0.043 | -0.044 |
| 0.444 | 0.004 | -0.016 | -0.029 | -0.036 | -0.045 | -0.049 | -0.046 |
| 0.463 | 0.054 | 0.007 | -0.030 | -0.044 | -0.048 | -0.049 | -0.049 |
| 0.482 | 0.262 | -0.009 | -0.049 | -0.058 | -0.056 | -0.056 | -0.056 |
| 0.492 | -0.144 | -0.082 | -0.075 | -0.070 | -0.064 | -0.059 | -0.059 |
| 0.501 | -0.210 | -0.145 | -0.098 | -0.076 | -0.058 | -0.068 | -0.063 |
| 0.510 | -0.248 | -0.186 | -0.116 | -0.090 | -0.070 | -0.072 | -0.063 |
| 0.518 | -0.253 | -0.207 | -0.140 | -0.100 | -0.079 | -0.072 | -0.068 |
| 0.527 | -0.274 | -0.223 | -0.150 | -0.108 | -0.084 | -0.082 | -0.072 |
| 0.571 | -3.225 | -0.197 | -0.151 | -0.113 | -0.093 | -0.078 | -0.077 |
| 0.588 | -0.183 | -0.170 | -0.135 | -0.100 | -0.083 | -0.072 | -0.077 |
| 0.506 | -0.140 | -0.132 | -0.106 | -0.092 | -0.080 | -0.064 | -0.068 |
| 0.623 | -0.094 | -0.095 | -0.087 | -0.077 | -0.071 | -0.057 | -0.057 |
| 0.641 | -0.047 | -0.054 | -0.063 | -0.060 | -0.061 | -0.054 | -0.054 |
| 0.660 | 3.072 | -0.011 | -0.039 | -0.047 | -0.051 | -0.048 | -0.044 |
| 0.671 | 0.040 | -0.002 | -0.029 | -0.041 | -0.045 | -0.044 | -0.047 |
| 0.691 | 0.019 | -0.001 | -0.021 | -0.034 | -0.039 | -0.032 | -0.041 |
| 0.730 | -0.007 | -0.015 | -0.016 | -0.029 | -0.031 | -0.039 | -0.036 |
| 0.750 | -0.016 | 0.002 | -0.020 | -0.030 | -0.034 | -0.034 | -0.033 |
| 0.769 | -0.016 | -0.021 | -0.028 | -0.031 | -0.031 | -0.031 | -0.036 |
| 0.789 | -0.018 | -0.019 | -0.024 | -0.028 | -0.037 | -0.033 | -0.034 |
| 0.808 | -0.023 | -3.024 | -0.032 | -0.032 | -0.034 | -0.028 | -0.036 |
| 0.828 | -0.032 | -0.068 | -0.032 | -0.033 | -0.031 | -0.035 | -0.031 |

Table 4.7 (continued)

TABULATED DATA

Case No.4 : Mach number 0.40 Angle of incidence 2.00

Lower surface

Pressures on the wing and at the wing/body junction

| η | 0.167* | 0.250 | 0.400 | 0.500 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | 0.138 | 0.162 | 0.172 | 0.186 | 0.191 | 0.183 | 0.165 |
| CM= | -0.043 | -0.042 | -0.042 | -0.046 | -0.047 | -0.041 | -0.034 |
| X/L | CP | CP | CF | CP | CP | CP | CP |
| 0.000 | | 0.500 | 0.474 | 0.460 | 0.466 | 0.450 | 0.520 |
| 0.005 | | 0.517 | 0.525 | | | | |
| 0.010 | 0.332 | 0.382 | 0.377 | 0.415 | 0.433 | 0.419 | 0.414 |
| 0.025 | 0.287 | 0.161 | 0.189 | 0.202 | 0.221 | 0.209 | 0.197 |
| 0.050 | 0.201 | 0.054 | 0.043 | 0.062 | 0.072 | J.068 | 0.053 |
| 0.075 | 0.129 | -0.003 | -0.028 | -0.011 | 0.011 | -0.007 | -0.005 |
| 0.100 | 0.086 | -0.030 | -0.059 | -0.047 | -0.036 | -0.041 | -0.047 |
| 0.150 | 0.012 | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.024 | -0.109 | -0.141 | -0.132 | -0.142 | -0.121 | -0.142 |
| 0.300 | -0.096 | -0.157 | -0.179 | -0.159 | -0.169 | -0.168 | -0.167 |
| 0.400 | -0.119 | -0.139 | -0.154 | -0.146 | -0.155 | -0.144 | -0.154 |
| 0.500 | -0.105 | -0.117 | -0.119 | -0.113 | -0.111 | -0.111 | -0.121 |
| 0.600 | -0.091 | -0.035 | -0.086 | -0.076 | -0.079 | -0.072 | **** |
| 0.700 | -0.067 | -0.050 | -0.046 | -0.040 | -0.033 | **** | -0.041 |
| 0.800 | -0.040 | -0.016 | -0.009 | -0.003 | -0.008 | -0.003 | -0.002 |
| 0.900 | -3.016 | 0.018 | 0.031 | **** | 0.033 | 0.035 | 0.039 |
| 0.950 | | 0.045 | 0.062 | 0.065 | 0.060 | 0.059 | 0.060 |
| 0.975 | | 0.070 | 0.080 | | | | |
| | | | | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| ♦ DEG | 0* | -15 | -30 | -45 | -60 | -7 5 | -90 |
|--|---|---|---|---|--|--|---|
| x/L | CP | СР | СР | СР | СР | СР | CP |
| 0.268 0.307 0.366 0.365 0.405 0.424 0.444 0.463 0.482 0.501 0.518 0.527 0.571 0.571 0.571 0.571 0.606 0.623 | -0.129 -0.093 -0.043 -0.035 -0.026 -0.008 0.004 0.058 0.271 0.201 0.086 0.011 -0.025 -0.072 -0.108 -0.092 -0.068 -0.041 | -0.126 -0.089 -0.043 -0.030 -0.019 -0.004 0.007 0.056 0.124 0.117 0.069 0.022 -0.017 -0.049 -0.081 -0.074 -0.055 -0.037 | -0.125 -0.088 -0.037 -0.029 -0.017 -0.002 0.006 0.025 0.043 0.040 0.029 0.014 -0.005 -0.021 -0.057 -0.050 -0.040 -0.032 | -0.119 -0.076 -0.040 -0.029 -0.017 -0.005 -0.002 0.009 0.015 0.014 0.009 0.004 -0.001 -0.031 -0.025 -0.030 -0.022 | -0.116 -0.084 -0.033 -0.026 -0.020 -0.009 -0.007 -0.001 -0.001 -0.002 -0.004 -0.009 -0.025 -0.024 -0.021 | -0.115 -0.079 -0.032 -0.024 -0.018 -0.010 -0.012 -0.010 -0.003 -0.003 -0.009 -0.009 -0.009 -0.020 -0.021 -0.021 -0.021 | -0.115 -0.079 -0.036 -0.023 -0.018 -0.011 -0.005 -0.006 -0.007 -0.006 -0.008 -0.011 -0.018 -0.011 |
| 0.641 0.660 0.671 0.691 0.730 0.750 0.769 0.789 0.808 0.828 | -0.017 0.071 0.040 0.019 -0.005 -0.015 -0.014 -0.019 -0.022 -0.026 | -0.013 0.010 0.012 0.006 -0.007 -0.011 -0.015 -0.016 -0.026 -0.008 | -0.019 -0.007 -0.003 0.005 -0.003 -0.014 -0.020 -0.021 -0.026 -0.024 | -0.019 -0.010 -0.008 -0.008 -0.011 -0.024 -0.014 -0.017 -0.026 -0.020 | -0.017 -0.014 -0.012 -0.010 -0.009 -0.016 -0.017 -0.019 -0.023 -0.015 | -0.015 -0.014 -0.015 -0.011 -0.018 -0.018 -0.022 -0.018 -0.035 | -0.013 -0.005 -0.012 -0.010 -0.013 -0.016 -0.020 -0.028 -0.022 -0.019 |

Table 4.8

TABULATED DATA

Case No.5 : Mach number 0.80 Angle of incidence 2.0°

Upper surface

Pressures on the wing and at the wing/body junction

| η | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | 0.177 | 0.184 | 0.206 | 0.224 | 0.229 | 0.230 | 0.201 |
| CM= | -0.062 | -0.051 | -0.052 | -0.052 | -0.051 | -0.047 | -0.032 |
| X/C | CP |
| 0.000 | | 0.662 | 0.578 | 0.573 | 0.565 | 0.513 | 0.520 |
| 0.005 | | -0.093 | -0.256 | | | | |
| 0.010 | 0.171 | -0.244 | -0.400 | -0.472 | -0.476 | -0.519 | -0.541 |
| 0.025 | 0.076 | -0.386 | -0.499 | -0.624 | -0.619 | -0.663 | -0.707 |
| 0.050 | -0.044 | -0.406 | -0.555 | -0.645 | -0.681 | -0.705 | -0.753 |
| 0.075 | -0.125 | -0.416 | -0.557 | -0.644 | -0.638 | -0.690 | -0.705 |
| 0.100 | -0.170 | -0.407 | -0.536 | -0.624 | -0.616 | -0.670 | -0.675 |
| 0.150 | **** | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.271 | -0.426 | -0.518 | -0.592 | -0.603 | -0:624 | -0.652 |
| 0.300 | -0.350 | -0.444 | -0.514 | -0.519 | -0.524 | -0.520 | -0.466 |
| 0.400 | -0.355 | -0.379 | -0.407 | -0.399 | -0.406 | -0.371 | -0.323 |
| 0.500 | -0.313 | -0.302 | -0.299 | -0.282 | -0.275 | -0.254 | -0.212 |
| 0.600 | -0.254 | -0.220 | -0.204 | -0.182 | -0.177 | -0.148 | -0.113 |
| 0.700 | -0.193 | -0.144 | -0.116 | -0.098 | -0.090 | -0.071 | -0.045 |
| 0.800 | -0.119 | -0.068 | -0.034 | -0.022 | -0.020 | 0.002 | 0.014 |
| 0.900 | -0.048 | 0.010 | 0.038 | 0.083 | 0.056 | 0.064 | 0.073 |
| 0.950 | | 0.058 | 0.085 | 0.083 | 0.094 | 0.105 | 0.103 |
| 0.975 | | 0.092 | 0.109 | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| \$\phi\text{DEG}\$ 0* 15 30 45 60 75 90 X'/L CP CP CP CP CP CP CP CP 0.268 -0.146 -0.154 -0.153 -0.151 -0.151 -0.154 -0.157 0.307 -0.098 -0.101 -0.102 -0.096 -0.100 -0.099 -0.100 0.366 -0.018 -0.018 -0.024 -0.025 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> | | | | | | | | |
|--|-------|--------|--------|--------|--------|---------|--------|--------|
| X/L CP | ♦ DEG | 0* | 15 | 30 | 45 | 60 | 75 | 90 |
| 0.268 | | | | | | | | |
| 0.268 | | | | | | | | |
| 0.268 | | | | | | | | |
| 0.268 | x'/1 | CP | CP | CP | CP | CP | CP | CP |
| 0.307 | _ | | | | | | | |
| 0.307 | | | | | | | | |
| 0.366 | 0.268 | -0.146 | -0.154 | -0.153 | -0.151 | -0.151 | -0.154 | -0.157 |
| 0.385 | 0.307 | -0.098 | -0.101 | -0.102 | -0.096 | -0.100 | -0.099 | -0.100 |
| 0.405 -0.006 -0.008 -0.011 -0.013 -0.017 -0.017 -0.018 0.424 0.051 0.007 -0.001 -0.007 -0.013 -0.014 -0.015 0.444 0.034 0.023 0.010 -0.007 -0.012 -0.019 -0.017 0.463 0.102 0.063 0.019 -0.002 -0.017 -0.023 -0.021 0.482 0.321 0.070 -0.001 -0.024 -0.032 -0.34 -0.040 0.492 -0.044 -0.024 -0.038 -0.044 -0.045 -0.046 -0.046 0.501 -0.170 -0.116 -0.083 -0.065 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.067 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.114 - | 0.366 | -0.031 | -0.032 | -0.031 | -0.029 | -0.036 | -0.031 | -0.035 |
| 0.424 0.051 0.007 -0.001 -0.007 -0.013 -0.014 -0.015 0.444 0.034 0.023 0.010 -0.007 -0.012 -0.019 -0.017 0.463 0.102 0.063 0.019 -0.002 -0.017 -0.023 -0.021 0.482 0.321 0.070 -0.001 -0.024 -0.032 -0.034 -0.040 0.492 -0.044 -0.024 -0.038 -0.045 -0.046 -0.046 0.501 -0.170 -0.116 -0.083 -0.065 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.087 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 | 0.385 | -0.018 | -0.018 | -0.024 | -0.025 | -0.025 | -0.025 | -0.024 |
| 0.444 0.034 0.023 0.010 -0.007 -0.012 -0.019 -0.017 0.463 0.102 0.063 0.019 -0.002 -0.017 -0.023 -0.021 0.482 0.321 0.070 -0.001 -0.024 -0.032 -0.034 -0.040 0.492 -0.044 -0.024 -0.038 -0.044 -0.045 -0.066 -0.046 0.501 -0.170 -0.116 -0.083 -0.055 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.037 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.551 -0.313 -0.273 -0.226 -0.169 -0.140 <t< td=""><td>0.405</td><td>-0.006</td><td>-0.008</td><td>-0.011</td><td>-0.013</td><td>-0.017</td><td>-0.017</td><td>-0.018</td></t<> | 0.405 | -0.006 | -0.008 | -0.011 | -0.013 | -0.017 | -0.017 | -0.018 |
| 0.463 0.102 0.063 0.019 -0.002 -0.017 -0.023 -0.021 0.482 0.321 0.070 -0.001 -0.024 -0.032 -0.034 -0.040 0.492 -0.044 -0.024 -0.038 -0.044 -0.045 -0.046 -0.046 0.501 -0.170 -0.116 -0.083 -0.065 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.63 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.087 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.222 -0.165 -0.133 -0.121 -0.109 0.588 -0.254 -0.232 -0.166 -0.131 -0.115 | 0.424 | 0.051 | 0.007 | -0.001 | -0.007 | -0.013 | -0.014 | -0.015 |
| 0.482 0.321 0.070 -0.001 -0.024 -0.032 -0.034 -0.040 0.492 -0.044 -0.024 -0.038 -0.044 -0.045 -0.046 -0.046 0.501 -0.170 -0.116 -0.083 -0.065 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.89 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.637 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.551 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 | 0.444 | 0.034 | 0.023 | 0.010 | -0.007 | -0.012 | -0.019 | -0.017 |
| 0.492 -0.044 -0.024 -0.038 -0.044 -0.045 -0.046 -0.046 0.501 -0.170 -0.116 -0.083 -0.065 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.087 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.012 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 | 0.463 | 0.102 | 0.063 | 0.019 | -0.002 | -0.017 | -0.023 | -0.021 |
| 0.501 -0.170 -0.116 -0.083 -0.065 -0.057 -0.067 -0.056 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.637 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.011 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 -0.085 -0.097 0.623 -0.120 -0.120 -0.112 -0.100 -0.092 | 0.482 | | 0.070 | -0.001 | -0.024 | -0.032 | -0.034 | -0.040 |
| 0.510 -0.248 -0.181 -0.121 -0.089 -0.075 -0.079 -0.063 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.087 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 -0.085 -0.097 0.623 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 | 0.492 | -0.044 | -0.024 | -0.038 | -0.044 | -0.045 | -0.046 | |
| 0.518 -0.271 -0.210 -0.162 -0.113 -0.088 -0.089 -0.076 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.687 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 -0.085 -0.097 0.623 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 | 0.501 | -0.170 | -0.116 | -0.083 | -0.065 | -0.057 | | |
| 0.527 -0.318 -0.262 -0.192 -0.130 -0.104 -0.101 -0.637 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.100 -0.011 0.6023 -0.120 -0.112 -0.100 -0.092 -0.064 -0.085 0.623 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.068 -0.052 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 | | | | | | | | |
| 0.536 -0.350 -0.282 -0.213 -0.150 -0.116 -0.114 -0.095 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.085 -0.097 0.623 -0.120 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 | | | | | | | | |
| 0.553 -0.356 -0.300 -0.232 -0.165 -0.133 -0.121 -0.109 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.085 -0.097 0.623 -0.120 -0.120 -0.112 -0.009 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.750 0.012 0.004 -0.014 -0.021 -0.010 -0.012 0.76 | | | | | | | | |
| 0.571 -0.313 -0.273 -0.226 -0.169 -0.140 -0.115 -0.113 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 -0.085 -0.097 0.623 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.004 -0.015 -0.012 -0.016 0.759 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0 | | | | | | | | |
| 0.588 -0.254 -0.232 -0.190 -0.148 -0.131 -0.100 -0.112 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 -0.085 -0.097 0.623 -0.120 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.014 -0.015 -0.012 -0.016 0.759 0.010 0.007 0.034 -0.010 -0.006 -0.012 -0.013 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.0 | | | | | | | | |
| 0.606 -0.193 -0.175 -0.156 -0.131 -0.113 -0.085 -0.097 0.623 -0.120 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.014 -0.015 -0.012 -0.016 0.759 0.010 0.007 0.034 -0.010 -0.006 -0.013 -0.011 -0.012 0.808 -0.001 0.003 -0.003 -0.006 -0.008 -0.009 -0.013 | | | | | | | | |
| 0.623 -0.120 -0.120 -0.112 -0.100 -0.092 -0.064 -0.080 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.004 -0.015 -0.012 -0.016 0.750 0.010 0.007 0.034 -0.010 -0.006 -0.011 -0.011 0.769 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0.013 0.808 -0.001 0.003 -0.009 -0.008 -0.015 -0.015 -0.015 | | | | | | | | |
| 0.641 -0.048 -0.055 -0.070 -0.070 -0.068 -0.052 -0.066 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.004 -0.015 -0.012 -0.016 0.750 0.010 0.007 0.034 -0.010 -0.006 -0.011 -0.011 0.769 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0.013 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.015 -0.015 | | | | | | | | |
| 0.660 0.094 0.010 -0.025 -0.039 -0.046 -0.039 -0.045 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.015 -0.015 -0.012 -0.016 0.750 0.010 0.007 0.034 -0.010 -0.006 -0.011 -0.011 0.769 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0.013 0.789 0.008 -0.002 -0.003 -0.007 -0.003 -0.014 -0.012 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.015 -0.015 | | | | | | | | |
| 0.671 0.071 0.026 -0.008 -0.027 -0.034 -0.029 -0.039 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.004 -0.015 -0.012 -0.016 0.750 0.010 0.007 0.034 -0.010 -0.006 -0.011 -0.011 0.769 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0.013 0.789 0.008 -0.002 -0.003 -0.007 -0.003 -0.014 -0.012 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.015 -0.015 | | | | | | | | |
| 0.691 0.049 0.020 0.004 -0.014 -0.021 -0.010 -0.027 0.730 0.022 0.012 0.004 -0.004 -0.015 -0.012 -0.016 0.750 0.010 0.007 0.034 -0.010 -0.006 -0.011 -0.011 0.769 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0.013 0.789 0.008 -0.002 -0.003 -0.007 -0.003 -0.014 -0.012 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.015 -0.015 | | | | | | 200 200 | | |
| 0.730 0.022 0.012 0.004 -0.004 -0.015 -0.012 -0.016 0.750 0.010 0.007 0.034 -0.010 -0.006 -0.011 -0.011 0.769 0.006 0.002 -0.005 -0.006 -0.008 -0.009 -0.013 0.789 0.008 -0.002 -0.003 -0.007 -0.003 -0.014 -0.012 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.015 -0.015 | | | | | | | | |
| 0.750 | | | | | | | | |
| 0.769 | | | | | | | | |
| 0.789 | | | | | | | | |
| 0.808 -0.001 0.003 -0.009 -0.008 -0.010 -0.015 -0.015 | | | | | | | | |
| | | | | | | | | |
| 0.828 -0.004 -0.076 -0.013 -0.011 -0.010 -0.011 -0.012 | | | | | | | | |
| | 0.828 | -0.004 | -0.076 | -0.013 | -0.011 | -0.010 | -0.011 | -0.012 |

Table 4.8 (continued)

TABULATED DATA

Case No.5 : Mach number 0.80 Angle of incidence 2.00

Lower surface

Pressures on the wing and at the wing/body junction

| η | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | 0.177 | 0.184 | 0.206 | 0.224 | 0.229 | 0.230 | 0.201 |
| CM= | -0.062 | -0.051 | -0.052 | -0.052 | -0.051 | -0.047 | -0.032 |
| X/C | CP |
| 0.000 | | 0.647 | 0.582 | 0.572 | 0.568 | 0.541 | 0.596 |
| 0.005 | | 0.548 | 0.549 | | | | |
| 0.010 | 0.389 | 0.414 | 0.400 | 0.426 | 0.466 | 0.452 | 0.450 |
| 0.025 | 0.358 | 0.209 | 0.208 | 0.208 | 0.250 | 0.241 | 0.234 |
| 0.050 | 0.280 | 0.071 | 0.052 | 0.061 | 0.086 | 0.089 | 0.072 |
| 0.075 | 0.204 | 0.009 | -0.028 | -0.023 | 0.017 | -0.003 | 0.001 |
| 0.100 | 0.150 | -0.025 | -0.066 | -0.070 | -0.042 | -0.044 | -0.050 |
| 0.150 | **** | **** | **** | **** | **** | **** | **** |
| 0.200 | 0.005 | -0.125 | -0.173 | -0.174 | -0.178 | -0.147 | -0.190 |
| 0.300 | -0.098 | -0.198 | -0.225 | -0.230 | -0.217 | -0.212 | -0.235 |
| 0.400 | -0.132 | -0.184 | -0.198 | -0.190 | -0.194 | -0.185 | -0.213 |
| 0.500 | -0.133 | -0.153 | -0.150 | -0.145 | -0.137 | -0.137 | -0.152 |
| 0.600 | -0.112 | -0.110 | -0.103 | -0.088 | -0.091 | -0.082 | -0.084 |
| 0.700 | -0.085 | -0.066 | -0.047 | -0.037 | -0.037 | -0.033 | -0.034 |
| 0.800 | -0.044 | -0.020 | 0.006 | 0.013 | 0.008 | 0.015 | 0.014 |
| 0.900 | -0.005 | 0.031 | 0.056 | 0.078 | 0.062 | 0.065 | 0.067 |
| 0.950 | | 0.067 | 0.090 | 0.102 | 0.092 | 0.103 | 0.097 |
| 0.975 | | 0.092 | 0.111 | | | | |
| | | | | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| φ DEG | 0* | -15 | -30 | -45 | -60 | - 75 | -90 |
|--------|--------|--------|--------|--------|--------|-------------|--------|
| | | | | | | | |
| x/L | СР | СР | СР | СР | СР | СР | СР |
| 0.268 | -0.145 | -0.149 | -0.144 | -0.142 | -0.126 | -0.138 | -0.136 |
| 0.307 | -0.097 | -0.098 | -0.095 | -0.088 | -0.092 | -0.090 | -0.089 |
| 0.366 | -0.029 | -0.026 | -0.025 | -0.043 | -0.026 | -0.022 | -0.023 |
| 0.385 | -0.018 | -0.013 | -0.015 | -0.012 | -0.013 | -0.011 | -0.010 |
| 0.405 | -0.004 | -0.002 | -0.000 | -0.CO1 | -0.001 | -0.002 | -0.001 |
| 0.424 | 0.070 | 0.017 | 0.015 | 0.016 | 0.011 | 0.012 | 0.009 |
| 0.444 | 0.035 | 0.036 | 0.031 | 0.024 | 0.021 | 0.013 | 0.015 |
| 0.463 | 0.107 | 0.097 | 0.067 | 0.046 | 0.029 | 0.024 | 0.021 |
| 0.482 | 0.332 | 0.189 | 0.098 | 0.056 | 0.039 | 0.026 | 0.023 |
| 0.492 | 0.280 | 0.177 | 0.097 | 0.057 | 0.034 | 0.025 | 0.021 |
| 0.501 | 0.150 | 0.117 | 0.079 | 0.051 | 0.031 | 0.017 | 0.018 |
| 0.510 | 0.056 | 0.056 | 0.054 | 0.037 | 0.025 | 0.012 | 0.019 |
| 0.518 | 0.006 | 0.003 | 0.027 | 0.024 | 0.010 | 0.007 | 0.010 |
| 0.527 | -0.055 | -0.037 | -0.002 | 0.007 | 0.006 | -0.001 | 0.005 |
| 0.536 | -0.098 | -0.064 | -0.026 | -0.007 | -0.002 | -0.011 | -0.000 |
| 0.553 | -0.132 | -0.102 | -0.056 | -0.030 | -0.018 | -0.021 | -0.011 |
| 0.571 | -0.133 | -0.106 | -0.071 | -0.044 | -0.029 | -0.023 | -0.018 |
| 0.508 | -0.111 | -0.094 | -0.070 | -0.041 | -0.031 | -0.020 | -0.022 |
| 0.000 | -0.086 | -0.071 | -0.057 | -0.038 | -0.030 | -0.016 | -0.020 |
| 0.523 | -0.044 | -0.041 | -0.040 | -0.027 | -0.024 | -0.010 | -0.017 |
| 0×541 | -0.005 | -0.006 | -0.017 | -0.011 | -0.014 | -0.005 | -0.012 |
| 0.860 | 0.099 | 0.033 | 0.008 | 0.004 | -0.003 | -0.001 | -0.001 |
| 04071 | 0.074 | 0.038 | 0.017 | 0.009 | 0.002 | 0.002 | -0.000 |
| EabNL | 0.050 | 0.033 | 0.023 | 0.013 | 0.006 | 0.011 | 0.003 |
| Su 730 | 0.019 | 0.017 | 0.018 | 0.012 | 0.007 | -0.000 | 0.005 |
| Da FND | 0.010 | 0.012 | -0.009 | 0.005 | 0.007 | 0.004 | 0.005 |
| Da Feb | 0.009 | 0.006 | 0.004 | 0.005 | 0.003 | 0.006 | 0.003 |
| 04.759 | 0.009 | 0.007 | 0.006 | 0.009 | -0.000 | 0.001 | 0.007 |
| | 0.001 | 0.015 | 0.001 | 0.002 | 0.002 | -0.004 | -0.000 |
| SANS. | -U+09* | 0.010 | -0.004 | -0.005 | -0.003 | -0.011 | -0.003 |

Table 4.9

TABULATED DATA

Case No.6 : Mach number 0.90

Angle of incidence 1.00

Upper surface

Pressures on the wing and at the wing/body junction

| η | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| CN= | 0.127 | 0.139 | 0.149 | 0.174 | 0.185 | 0.178 | 0.150 |
| CM= | -0.055 | -0.050 | -0.047 | -0.047 | -0.045 | -0.037 | -0.024 |
| X/C | CP |
| 0.000 | | 0.751 | 0.688 | 0.680 | 0.674 | 0.634 | 0.653 |
| 0.005 | | 0.184 | 0.089 | | | | |
| 0.010 | 0.289 | 0.027 | -0.063 | -0.104 | -0.127 | -0.153 | -0.143 |
| 0.025 | 0.219 | -0.146 | -0.216 | -0.304 | -0.327 | -0.355 | -0.374 |
| 0.050 | 0.116 | -0.215 | -0.327 | -0.397 | -0.458 | -0.460 | -0.497 |
| 0.075 | 0.036 | -0.253 | -0.370 | -0.443 | -0.471 | -0.494 | -0.507 |
| 0.100 | -0.018 | -0.261 | -0.373 | -0.456 | -0.464 | -0.514 | -0.509 |
| 0.150 | **** | **** | **** | **** | **** | **** | **** |
| 0.200 | -0.152 | -0.331 | -0.452 | -0.614 | -0.700 | -0.684 | -0.700 |
| 0.300 | -0.264 | -0.419 | -0.555 | -0.655 | -0.728 | -0.769 | -0.788 |
| 0.400 | -0.328 | -0.421 | -0.575 | -0.753 | -0.830 | -0.717 | -0.607 |
| 0.500 | -0.358 | -0.404 | -0.540 | -0.310 | -0.244 | -0.191 | -0.167 |
| 0.600 | -0.353 | -0.381 | -0.219 | -0.126 | -0.114 | -0.079 | -0.027 |
| 0.700 | -0.307 | -0.197 | -0.090 | -0.045 | -0.036 | -0.003 | 0.032 |
| 0.800 | -0.158 | -0.075 | -0.001 | 0.021 | 0.027 | 0.054 | 0.076 |
| 0.900 | -0.052 | 0.020 | 0.071 | **** | 0.094 | 0.107 | 0.122 |
| 0.950 | | 0.081 | 0.113 | 0.118 | 0.128 | 0.137 | 0.158 |
| 0.975 | | 0.113 | 0.134 | | | | |
| | | | | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

| ♦ DEG | 0* | 15 | 30 | 45 | 60 | 75 | 90 |
|----------------------------------|--------------------------------|-------------------------|---------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|
| x/L | CP | СР | СР | СР | СР | СР | СР |
| 0.268 | -0.167 | -0.171 | -0.166 | -0.175 | -0.133 | -0.166 | -0.166 |
| 0.307 | -0.096 | -0.099 | -0.097 | -0.096 | -0.096 | -0.159 | -0.095 |
| 0.366 | 0.043 | ***** | **** | -0.015 | **** | **** | **** |
| 0.385 | -0.003 | 0.053 | -0.005 | ***** | -0.008 | -0.008 | -0.005 |
| 0.405 | 0.012 | 0.010 | 0.012 | 0.008 | 0.004 | 0.002 | 0.003 |
| 0.424 | 0.213 | 0.031 | 0.026 | 0.025 | 0.014 | 0.015 | 0.012 |
| 0.444 | ***** | ***** | 0.042 | ***** | 0.030 | ***** | ***** |
| 0.463 | 0.138 | 0.107 | 0.070 | 0.045 | 0.027 | 0.019 | 0.017 |
| 0.482 | 0.355 | 0.148 | 0.075 | 0.036 | 0.020 | 0.011 | -0.002 |
| 0.492 | 0.116 | 0.079 | 0.048 | 0.018 | 0.008 | 0.001 | -0.002 |
| 0.501 | -0.018 | 0.051 | 0.008 | -0.003 | -0.007 | -0.027 | -0.015 |
| 0.510 | -0.113 | -0.080 | -0.035 | -0.029 | -0.025 | -0.044 | -0.022 |
| 0.518 | -0.152 | -0.136 | -0.091 | -0.059 | -0.045 | -0.060 | -0.042 |
| 0.527 | -0.212 | -0.180 | -0.119 | -0.092 | -0.067 | -0.024 | -0.060 |
| 0.536 | -0.264 | -0.217 | -0.155 | -0.116 | -0.090 | -0.118 | -0.076 |
| 0.553 | -0.326 | -0.289 | -0.213 | -0.165 | -0.135 | -0.156 | -0.113 |
| 0.571 | -0.357 | -0.319 | -0.259 | -0.213 | -0.176 | -0.176 | -0.148 |
| 0.588 | -0.353 | -0.340 | -0.284 | -0.226 | -0.196 | -0.165 | -0.167 |
| 0.606 | -0.307 | -0.292 | -0.261 | -0.216 | -0.130 | -0.125 | -0.159 |
| 0.623 | -0.158 | -0.163 | -0.163 | -0.145 | -0.136 | -0.081 | -0.117 |
| 0.641 | -0.051 | -0.062 | -0.079 | -0.081 | -0.083 | -0.046 | -0.084 |
| 0.660 | 0.105 | 0.023 | -0.013 | -0.030 | -0.040 | -0.029 | -0.040 |
| 0.671 | 0.148 | **** | 0.009 | -0.010 | -0.023 | -0.014 | -0.030 |
| 0.691 0.730 0.750 0.769 | 0.070 **** **** 0.020 | -0.028 0.032 **** | 0.027 -0.026 -0.028 | 0.006 0.016 -0.029 | -0.005 -6.225 ***** | 0.020 -0.027 ***** | -0.011 ***** 2.253 **** |
| 0.789 | 0.025 | 0.014 | 0.013 | 0.014 | 0.009 | 0.004 | 0.004 |
| 0.808 | 0.014 | 0.014 | 0.011 | 0.003 | 0.010 | -0.002 | 0.003 |
| 0.828 | 0.011 | -0.042 | 0.004 | 0.005 | 0.008 | 0.005 | 0.006 |

Table 4.9 (continued)

TABULATED DATA

Case No.6 : Mach number 0.90 Angle of incidence 1.00 Lower surface

Pressures on the wing and at the wing/body junction

| n | 0.167* | 0.250 | 0.400 | 0.600 | 0.750 | 0.850 | 0.925 |
|-------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| CN= | 0.127 | 0.139 | 0.149 | 0.174 | 0.185 | 0.178 | 0.150 |
| CM= | -0.055 | -0.050 | -0.047 | -0.047 | -0.045 | -0.037 | -0.024 |
| 0.000 | CP | CP 0.742 | CP 0.693 | CP 0.678 | O•686 | CP 0.654 | CP 0.686 |
| 0.005 | 0.394 | 0.499 | 0.450 | 0.296 | 0.306 | 0.313 | 0.291 |
| 0.025 | 0.357 | 0.157 | 0.105 | 0.077 | 0.088 | 0.096 | 0.092 |
| 0.075 | 0.198 | -0.026 | -0.115 | -0.140 | -0.123 | -0.119 | -0.117 -0.163 |
| 0.100 | 0.146 | -0.061 **** | -0.148 | -0.183 **** | -0.182 **** | -0.155 ***** | **** |
| 0.200 | -0.009 -0.127 | -0.161 -0.262 | -0.263 -0.351 | -0.289 -0.358 | -0.327 -0.355 | -0.273 -0.342 | -0.321 -0.371 |
| 0.400 | -0.188 -0.205 | -0.266 -0.215 | -0.321 -0.223 | -0.273 -0.191 | -0.285 -0.193 | -0.267 -0.194 | -0.361 -0.180 |
| 0.600 | -0.183 | -0.170 | -0.136 | -0.110 | -0.116 | -0.113 | -0.063 |
| 0.700 | -0.140 -0.075 | -0.102 -0.035 | -0.061 0.010 | -0.039 0.024 | -0.040 0.019 | 0.034 | 0.053 |
| 0.900 | -0.020 | 0.035 | 0.073 | ***** 0.127 | 0.087 | 0.144 | 0.110 0.136 |
| 0.975 | | 0.110 | 0.137 | | | | |

* Nominal value for body/wing junction NB Pressure measured on body, see Table 4.2

Pressures on the body

| ¢ DEG | 0* | -15 | -30 | -45 | -60 | - 75 | -90 |
|-------|--------|--------|--------|--------|--------|-------------|--------|
| x/L | СР | СР | СР | СР | СР | СР | CP |
| | | | | | | | |
| 0.268 | -0.163 | -0.165 | -0.163 | -0.162 | -0.141 | -0.161 | -0.161 |
| 0.307 | -0.096 | -0.098 | -0.097 | -0.093 | -0.096 | -0.121 | -0.094 |
| 0.366 | -0.012 | -0.015 | -0.011 | -0.014 | -0.013 | -0.017 | -0.016 |
| 0.385 | -0.003 | 0.002 | -0.001 | -0.001 | -0.001 | -0.000 | 0.001 |
| 0.405 | 0.016 | 0.014 | 0.015 | 0.014 | 0.012 | 0.011 | 0.011 |
| 0.424 | 0.167 | 0.036 | 0.034 | 0.032 | 0.026 | 0.026 | 0.023 |
| 0.444 | 0.061 | 0.056 | 0.054 | 0.042 | 0.044 | 0.031 | 0.033 |
| 0.463 | 0.140 | 0.124 | 0.091 | 0.068 | 0.051 | 0.042 | 0.039 |
| 0.482 | 0.366 | 0.205 | 0.122 | 0.076 | 0.056 | 0.044 | 0.038 |
| 0.492 | 0.279 | 0.180 | 0.117 | 0.072 | 0.053 | 0.040 | 0.037 |
| 0.501 | 0.145 | 0.112 | 0.090 | 0.061 | 0.046 | 0.025 | 0.031 |
| 0.510 | 0.043 | 0.045 | 0.059 | 0.042 | 0.034 | 0.014 | 0.027 |
| 0.518 | -0.009 | -0.014 | 0.026 | 0.021 | 0.021 | 0.003 | 0.014 |
| 0.527 | -0.074 | -0.058 | -0.014 | -0.009 | 0.004 | -0.010 | 0.004 |
| 0.536 | -0.126 | -0.096 | -0.046 | -0.026 | -0.011 | -0.035 | -0.008 |
| 0.553 | -0.187 | -0.158 | -0.097 | -0.065 | -0.043 | -0.056 | -0.032 |
| 0.571 | -0.204 | -0.181 | -0.125 | -0.094 | -0.067 | -0.063 | -0.050 |
| 0.588 | -0.182 | -0.164 | -0.128 | -0.096 | -0.074 | -0.057 | -0.063 |
| 0.606 | -0.140 | -0.128 | -0.105 | -0.086 | -0.068 | -0.045 | -0.054 |
| 0.623 | -0.075 | -0.078 | -0.071 | -0.060 | -0.052 | -0.026 | -0.042 |
| 0.641 | -0.020 | -0.021 | -0.031 | -0.030 | -0.029 | -0.008 | -0.027 |
| 0.660 | 0.107 | 0.039 | 0.011 | 0.002 | -0.005 | -0.000 | -0.006 |
| 0.671 | 0.093 | 0.053 | 0.027 | 0.013 | 0.007 | 0.010 | -0.000 |
| 0.691 | 0.072 | 0.052 | 0.042 | 0.024 | 0.017 | 0.023 | 0.011 |
| 0.730 | 0.041 | 0.037 | 0.031 | 0.028 | 0.022 | -0.006 | 0.018 |
| 0.750 | 0.029 | 0.030 | 0.027 | 0.021 | 0.023 | 0.018 | 0.018 |
| 0.769 | 0.025 | 0.023 | 0.021 | 0.020 | 0.019 | 0.016 | 0.017 |
| 0.789 | 0.024 | 0.020 | 0.019 | 0.019 | 0.016 | 0.011 | 0.014 |
| 0.808 | 0.016 | 0.014 | 0.016 | 0.011 | 0.015 | 0.014 | 0.012 |
| 0.826 | 0.014 | 0.014 | 0.011 | 0.010 | 0.012 | 0.005 | 0.012 |

And the property of the second of the second

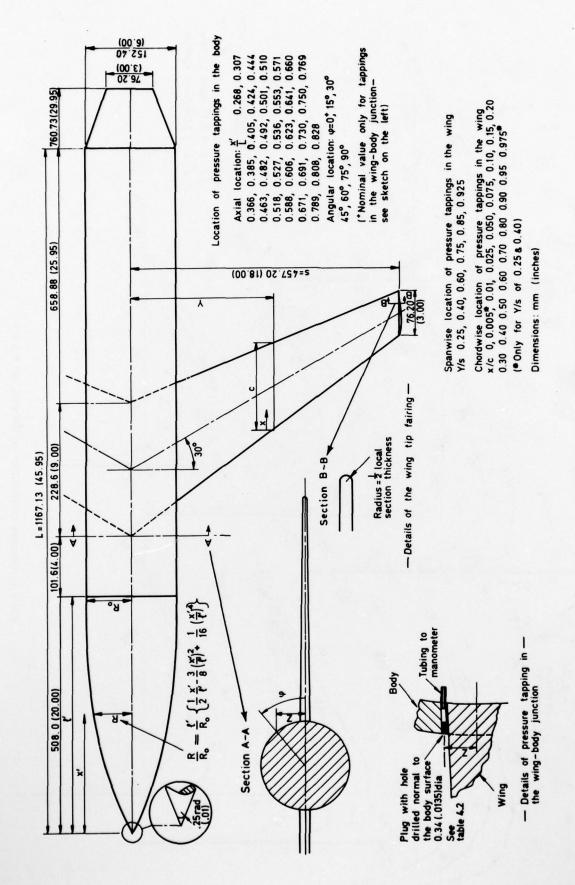
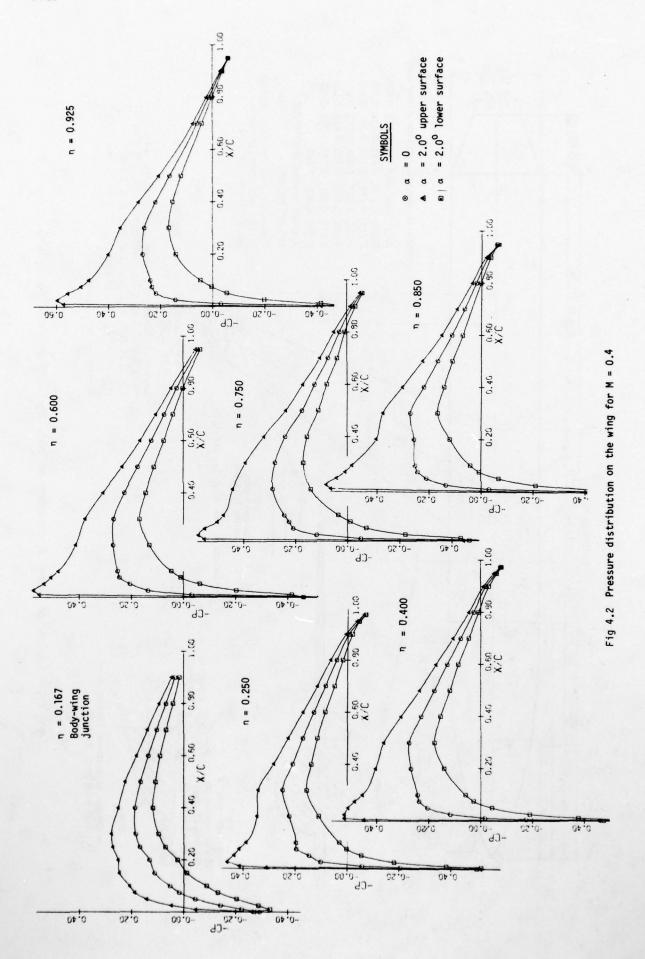
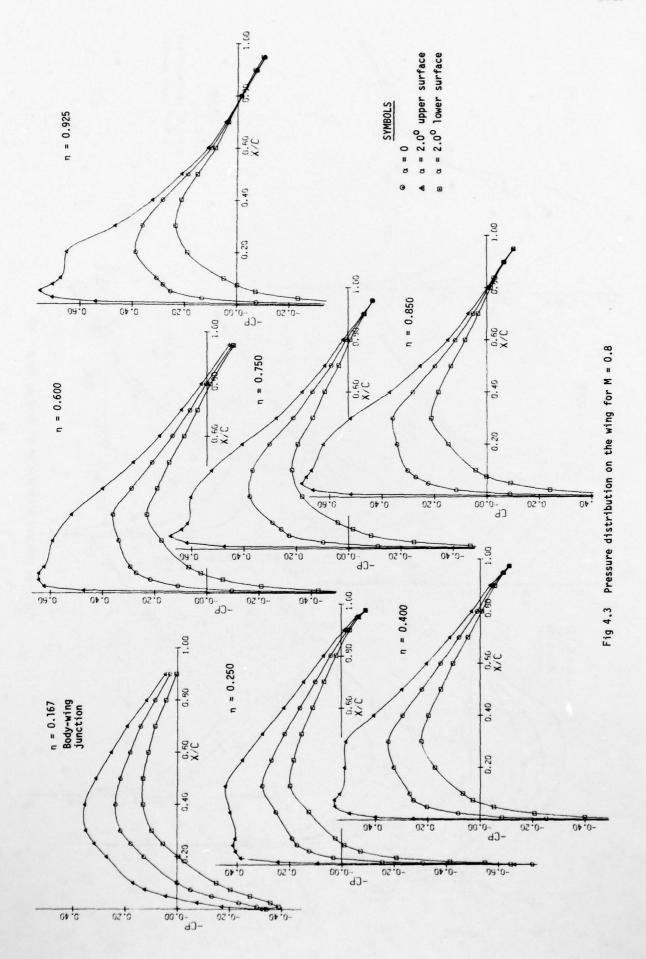
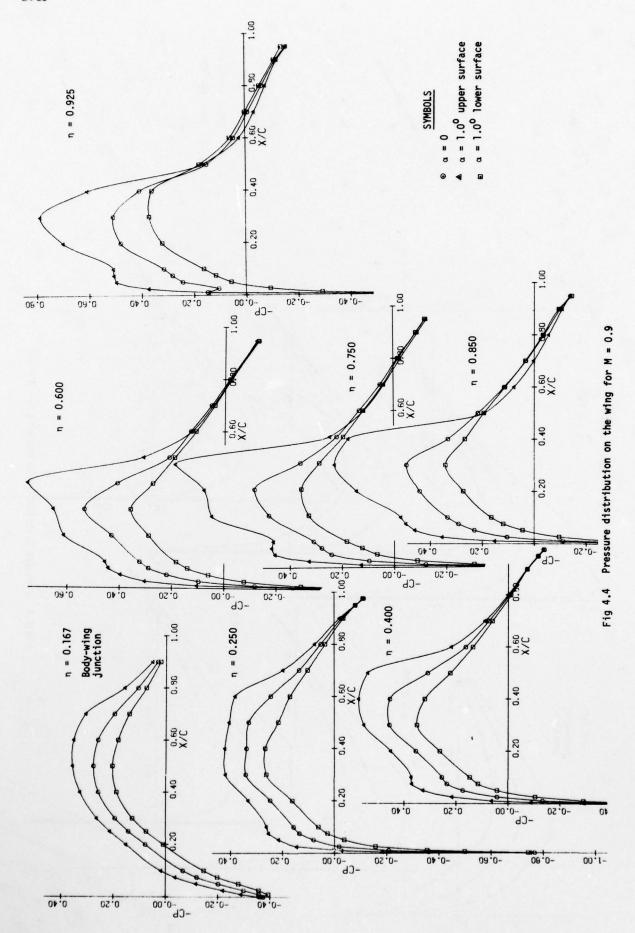
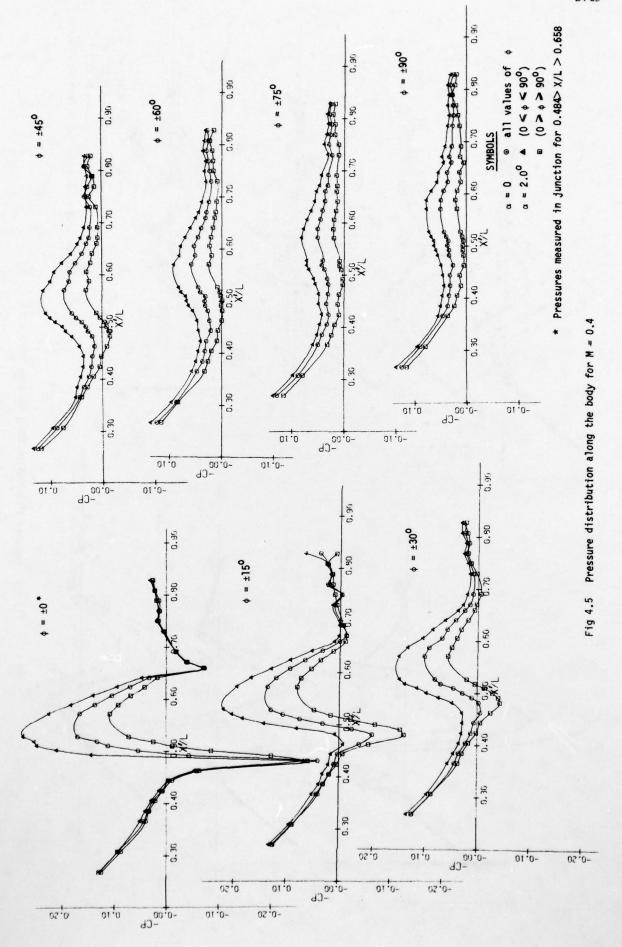


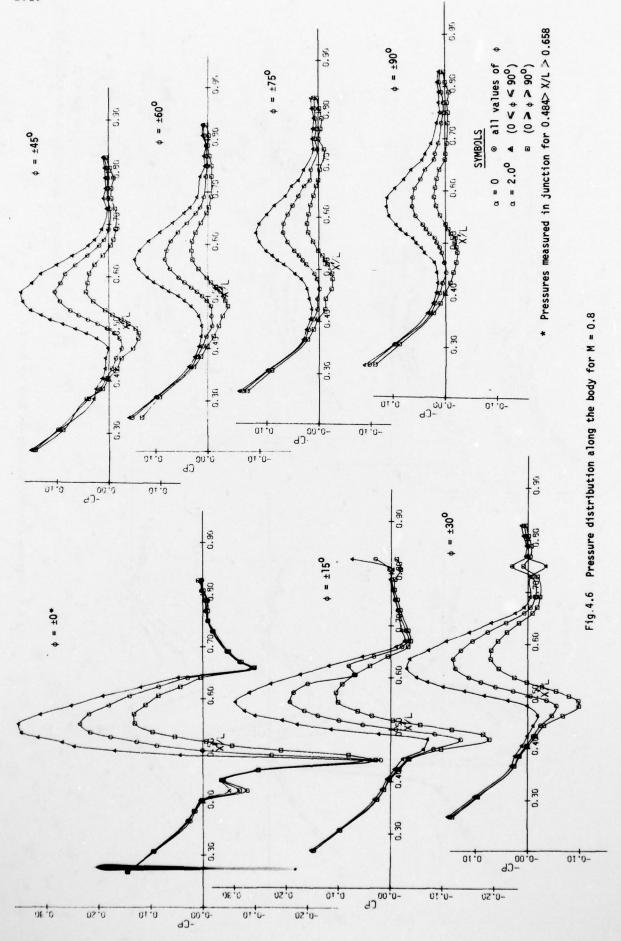
Fig 4.1 Sketch of wing A mounted on body B₂: Configuration W_A B₂(0)0

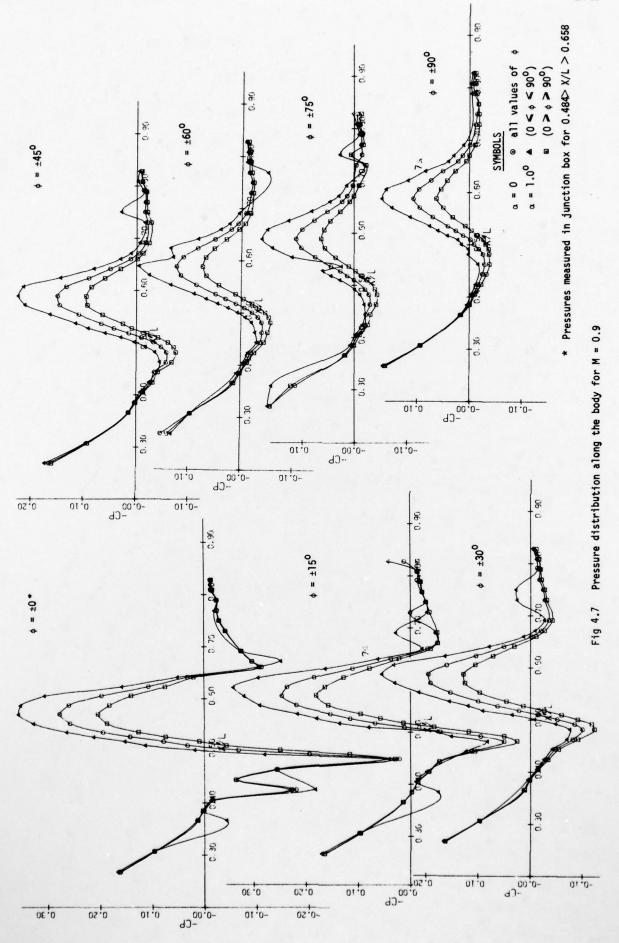












5. PRESSURE DISTRIBUTIONS MEASURED ON AN NASA SUPERCRITICAL-WING RESEARCH AIRPLANE MODEL

C. D. Harris and D. W. Bartlett

National Aeronautics and Space Administration Langley Research Center Hampton, Virginia 23665

5.1 INTRODUCTION

The data presented in this contribution were obtained in the NASA Langley 8-Foot Transonic Pressure Tunnel on a supercritical-wing research airplane to provide a smooth area distribution and consequently a high drag-rise Mach number. Measurements were made with and without area-rule additions; only data for the former are included in this compilation. Tabulated data is given for 5 Mach numbers ranging from 0.50 to 0.99 and for four or five angles of artack at each Mach number.

5.2 DATA SET

1. General Description

| 1.1 | Model Designation or Name | TF-8A Supercritical Wing Research Airplane Model |
|-----|---|--|
| 1.2 | Model Type (e.g., Full Span Wing-Body, Semi-Span Wing) | Full span wing-body-tail |
| 1.3 | Design Requirements/ Conditions | Basic model: $M = 1.00$ $\frac{\partial C_D}{\partial M} \Big _{M \sim 1} = 0.1$ |
| 1.4 | Additional Remarks | Investigation includes measurements with |

Investigation includes measurements with and without area rule additions to sides of fuselage. Only data with area rule additions are included in the present compilation.

2. Mode:

2.1

| 21 | Geometr | y | |
|----|---------|--|--|
| | Wing Da | ta | |
| | 2.1.1 | Wing Planform | See figure 5.1. |
| | 2.1:2 | Aspect Ratio | 6.8 for basic wing (dashed line) - excludes L.E. glove, T. E. extension, and tip rounding. |
| | 2.1.3 | Leading-Edge Sweep | 44.340 |
| | 2.1.4 | Trailing-Edge Sweep | 44.34° quarter chord 42.24° 35.10° |
| | 2.1.5 | Taper Ratio | 0.36 |
| | 2.1.6 | Twist | $\sim 5^{\rm O}$ root to tip, unloaded. (Included in ordinates of Table I.) |
| | 2.1.7 | Mean Aerodynamic Chord | 0.1809 m (for basic wing planform) |
| | 2.1.8 | Span or Semispan | 0.5715 m semispan |
| | 2.1.9 | Number of Airfoil Sections Used to Define Wing | 17 |
| | 2.1.10 | Spanwise Location of Reference Section and | See Table I. Values given are actual measured values. |

| 2.1.10 | Spanwise Location of Reference Section and Section Coordinates (Note if Ordinates are Design or Actual Measured Values) | See Table I. Values given are actual measured values. |
|--------|--|---|
| 2.1.11 | Lofting Procedure Between Reference | Unknown. |

| 2.1.12 | Wing-Body Strakes | See | figure | 5.2. |
|--------|----------------------|-----|--------|------|

Sections

See figures 5.1 and 5.3. 2.2 Body Data (Detail Description of Body Geometry) Wing-Body Combination 2.3 Relative Body Diameter ~0.12 (irregular body). 2.3.1 (Average Body Diameter at Wing Location Divided by Wing Span) ~1, high wing. 2.3.2 Relative Vertical Location of Wing (Height Above or Below Body Axis Divided by Average Body Radius at Wing Location) 1.50 (included in ordinates of Table I). 2.3.3 Wing Setting Angle Dihedral 2.3.4 See figure 5.4 2.4 Cross Sectional Area Development Waviness not determined. Values given 2.5 Fabrication Tolerances/ in Table I are actual measured values. Waviness Additional details of aileron fairings Additional Remarks 2.6 and vortex generators shown in figure 5.1 are given in figure 5.5. 3. Wind Tunnel 8-Foot Transonic Pressure Tunnel 3.1 Designation 3.2 Type of Tunnel Continuous or Continuous 3.2.1 Blowdown. Indicate Minimum Run Time if Applicable 3.2.2 Stagnation Pressure Varies from approximately 15 to 68 k N/m² depending on Mach number and Reynolds number 3.2.3 Stagnation Temperature Generally kept at 322 K. 3.3 Test Section Shape of Test Section 3.3.1 Square 3.3.2 Size of Test Section 2.2 m x 2.2 m x 4.3 m (Width, Height, Length) Slotted top and bottom, solid sides. 3.3.3 Type of Test Section Closed, Open, Slotted, Slotted walls approximately 6% open. Perforated Four identical slots of longitudinally Open Area Ratio (Give Range if Variable) varying width in top and bottom walls. See figure 5.6 and 5.7. Slot/Hole Geometry

(e.g., 30-Degree Slanted Holes) Treatment of Sidewall Nothing done to sidewall boundary layer.

Full span models

Half-model testing

Boundary Layer

Tunnel has capability for full and half span model testing

3.4 Flow Field (Empty Test Section)

3.4.1 Reference Static Pressure

Plenum chamber.

3.4.2 Flow Angularity

Generally less than $0.1^{\rm O}$ but may go as high as $0.25^{\rm O}$ near slots.

3.4.3 Mach Number Distribution

 $\Delta M + 0.002$

3.4.4 Pressure Gradient

3.4.5 Turbulence/Noise Level

Lateral fluctuating velocity components $\widetilde{\nabla}/U_{\infty}$ and \widetilde{w}/U_{∞} have not been measured. \widetilde{u}/U_{∞} varies from 0.002 at M = 0.2 to about 0.02 at high Mach numbers.

3.4.6 Sidewall Boundary Layer

3.5 Freestream Mach Number (or Velocity)

3.5.1 Range

0.2 to 1.3.

3.5.2 Pressures Used to
Determine Mach Number
(e.g., Settling
Chamber Total Pressure
and Plenum Chamber
Pressure)

Settling chamber total pressure and plenum chamber pressure.

3.5.3 Accuracy of Mach Number Determination (\Delta M) $\Delta M = +0.003.$

3.5.4 Maximum Mach Number
Variation in x, y,
z - Direction (Empty
Tunnel; Specify at
What Mach Number)

Streamwise variations of approximately ± 0.002 over the Mach number range.

Maximum Variation of Flow Direction

Maximum Mach Number Variation During a Run +0.002.

3.6 Reynolds Number Range

3.6.1 Unit Reynolds Number
Range. (Give Range at
Representative Mach
Numbers; 1/m)

Generally about 2 million/m to 18 million/m at most Mach numbers.

3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization) Pressurization

3.7 Temperature Range and Dewpoint. Can Temperature be Controlled? Most runs made at 322 K stagnation temperature. Temperature and dewpoint both controlled.

3.8 Model Attitudes

3.8.1 Angle of Attack, Yaw, Roll

may be received the do show the same same some some some of the same

 $\alpha = -15^{\circ}$ to 25, yaw $\pm 7^{\circ}$, roll 360°

3.8.2 Accuracy in Determining Angles

 $\alpha \pm 0.1^{O}$ at max lift $\pm 0.05^{O}$ near cruise

3.9 Organization Operating the Tunnel and Location of Tunnel Transonic Aerodynamics Branch of the Subsonic-Transonic Aerodynamics Division, NASA Langley Research Center

3.10 Who is to be Contacted for Head, Transonic Aerodynamics Branch, Additional Information NASA Langley Research Center "A Description of the NASA-Langley 8-Foot Transonic Pressure Tunnel" 3.11 Literature Concerning this Facility can be obtained from the above organization. 3.12 Additional Remarks 4. Tests Surface pressures and force and moment 4.1 Type of Tests measurements 4.2 Wing Span or Semispan to wing span Tunnel width = .52 Tunnel Width 4.3 Test Conditions 4.3.1 Angle of Attack Varies approximately -50 to +120. 4.3.2 Mach Number 0.25 to 1.0 4.3.3 Dynamic Pressure See Table II for conditions at which current tests were run. 4.3.4 Reynolds Number 4.3.5 Stagnation Temperature 322 K (120 F) 4.4 Transition Free or Fixed 4.4.1 Fixed. 4.4.2 Position of Free Transition 4.4.3 See figure 5.8 for positions on wing. Position of Fixed Transition, Width of Strips, Size and Strips located at 5% local chord on horizontal and vertical tail, 2.54 cm Type of Roughness aft of nose on fuselage. Width of all strips was 0.127 cm. Size and type of Elements roughness elements are given on figure 5.6. Note that No. 100 and 120 carborundum grains average 0.005 in. (0.127 mm) and 0.004 in. (0.102 mm) respectively. Were Checks Made to 4.4.4 No. Determine if Transition Occurred at Trip Locations? 4.5 Bending or Torsion Under Load 4.5.1 Describe Any Aero-None. Elastic Measurements Made During Tests 4.5.2 Describe Results of See figure 5.9 for deflections at pressure Any Bench Calibrations stations for cruise conditions. 4.6 Were Different Sized Models But full-scale vehicle was flight tested. See reference list.

Used in Wind-Tunnel Irvestigations? If so, Indicate Sizes.

4.7 Areas and Lengths Used to Form Coefficients

All coefficients based on basic wing panel geometry which does not include L. E. glove nor T. E. extension. Moments referenced to 1/4 chord of mean geometric chord (max) of basic wing panel. See figure 5.1.

> $S = 0.193 \text{ m}^2$ Area:

MAC: $\bar{c} = 0.1809 \text{ m}$

4.8 References on Tests See references 1, 2, and3.

4.9 Related Reports See references 4 and 5.

5. Instrumentation

- 5.1 Surface Pressure Measurements
 - 5.1.1 Pressure Orifices in Wing. Location and Number on Upper and Lower Surfaces

See Table III.

5.1.2 Pressure Orifices on Fuselage. Location and Number. See Table IV. Total of 67 orifices

5.1.3 Pressure Orifices on Components, Give Component and Orifice Location No.

5.1.4 Geometry of Orifices

Round holes ~0.076 cm I.D.

5.1.5 Type of Pressure
Transducer and
Scanning Devices Used.
Indidate Range and
Accuracy

Electronically actuated differential modular scanivalve in model nose.

Upper surface: Lower surface: Fuselage: 103.4 kN/m²max; \pm 1% max. 82.7 kN/m²max; \pm 1% max. 17.2 kN/m²max; \pm 1% max.

- 5.2 Force Measurements
 - 5.2.1 Type and Location of Balance

Internal strain-gage balance.

5.2.2 Forces and Moments that Can be Measured.
Maximum Loads and Accuracy

6 component force and moment.
Normal force: 11 kN; +55.6N
Axial force: 890 N; +4.4N
Pitching moment: 390 m-N; +2 m-N

5.2.3 Forces and Moments on Components

None.

Type and Location of Balance

Maximum Loads and Accuracy.

5.3 Boundary Layer and Flow-Field Measurements

5.3.1 Boundary-Layer Probe Type, Position, and Drive Mechanism

No

- 5.3.2 Probe Dimension Relative to Boundary-Layer Thickness
- 5.3.3 Laser-Doppler Velocimeter. Give Description of Apparatus and Accuracy

No.

- 5.3.4 Method and/or
 Instrument Used to
 Determine BoundaryLayer Transition
- 5.3.5 Describe any Downstream Rakes or Probes Used. Reason for Use.

- 5.4 Surface Flow Visualization
 - 5.4.1 Indicate Method Used to Determine
 - Streamline pattern

Not in present experiments. Photographs of fluorescent oil film given for present configuration in references 4 and 5.

- Boundary-layer transition

Carborundum transition strips.

- 5.4.2 Accuracy of Method
- 5.5 Skin Friction Measurements
 - 5.5.1 Type of Instrument
 - 5.5.2 Geometry and Accuracy of Instrument
 - 5.5.3 Locations Where Probe Used
- 5.6 Simulation of Exhaust Jet

5.6.1 Describe Ducting of Air

There was internal flow through the model which simulated the mass flow ratio of the full-scale airplane.

- 5.7 Additional Remarks
- 6. Data
 - 6.1 Accuracy
 - 6.1.1 Pressure Coefficients

Variable but < or > 2% of maximum and minimum values, respectively.

- 6.1.2 Aerodynamic Coefficients
- Variable but < or > 2% of maximum and minimum values, respectively.
- 6.1.3 Boundary Layer and Wake Quantities
- 6.1.4 Repeatability
- Unknown.

No.

- 6.1.5 Additional Remarks
- 6.2 Wall Interference Corrections
 - 6.2.1 Solid and Wake Blockage. Give Procedures and Equations
 - 6.2.2 Give Blockage Factors as Functions of Mach Number

None made. Test section sidewall inserts were added and indented in region of model to account for 40% of model cross-sectional area. (See figure 5.7).

An assessment of blockage factors (for fineness ratio 8.2) can perhaps be made from the data contained in:

- Couch, L. M.; and Brooks, C. W., Jr.: Effect of Blockage Ratio on Drag and Pressure Distributions for Bodies of Revolution at Transonic Speeds. NASA TN D-7331, Nov. 1973.
- Usry, J. W.; and Wallace, J. W.: Drag of a Supercritical Body of Revolution in Free Flight at Transonic Speeds and Comparison With Wind-Tunnel Data. NASA TN D-6580, 1971.
- 6.2.3 Downwash, Streamline Curvature and Lift Interference. Give Procedure and Equations.

Measured α corrected for induced upwash using procedure outlined in NASA TR R-241 by R. H. Wright and R. L. Barger.

- 6.2.4 Give Lift Interference Parameters as Function of Mach Number
- 6.2.5 Reference on Wall-Interference Corrections
- 6.2.6 Additional Remarks
- 6.3 Data Presentation

 - 6.3.2 Surface Pressure Wing and body $C_{\rm p}$ distributions, Tables VI, VII and VIII and figure 5.11.
 - 6.3.3 Flow conditions for
 - Aerodynamic C_L , C_D , and C_m plots given for Mach coefficient data numbers listed in Table V.

Pressure data Tabulated in Table V.

- 6.3.4 Boundary Layer and/or None. Wake Data
- 6.3.5 Flow Conditions for Boundary Layer and/or Wake Data
- 6.3.6 Wall Interference No. Corrections Included?
- 6.3.7 Aeroelastic Correct- No. See 4.5.2. ions Included?
- 6.3.8 Other Corrections?
- 6.3.9 Additional Remarks
- 6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base?

Yes. Langley 16-Foot Transonic Tunnel. See reference 4.

7. References

- Harris, C. D.; and Bartlett, D. W.: Tabulated Pressure Measurements on an NASA Supercritical-Wing Research Airplane Model With and Without Fuselage Area-Rule Additions at Mach 0.25 to 1.00. NASA TM X-2634, Dec. 1972.
- Bartlett, D. W.; and Harris, C. D.: Aerodynamic Characteristics of an NASA Supercritical-Wing Research Airplane Model With and Without Fuselage Area-Rule Additions at Mach 0.25 to 1.00. NASA TM X-2633, Dec. 1972.
- Harris, C. D.: Wind-Tunnel Measurements of Aerodynamic Load Distribution on an NASA Supercritical-Research Airplane Configuration. NASA TM X-2469, Feb. 1972.
- Bartlett, Dennis W. and Re, Richard, J.: Wind-Tunnel Investigation of Basic Aerodynamic Characteristics of a Supercritical-Wing Research Airplane Configuration. NASA TM X-2470, Feb. 1972.
- Kelly, T. C.; and Whitcomb, R. T.: Evolution of the F-8 Supercritical Wing Configuration. Supercritical Wing Technology, A Progress Report on Flight Evaluations. NASA SP-301, pp. 35-47, 1972.
- Montoya, L. C.; and Banner, R. D.: F-8 Supercritical Wing Flight Pressure, Boundary Layer and Wake Measurements and Comparison With Wind Tunnel Data. NASA TM X-3544, June 1977.
- Pyle, J. S.; and Steers, L. L.: Flight Determined Lift and Drag Characteristics of an F-8 Airplane Modified With a Supercritical Wing With Comparisons to Wind Tunnel Results. NASA TM X-3250, June 1975.

8. List of Symbols

| 1100 | or symbols | |
|------|--|---|
| | A | aspect ratio |
| | b | wing span |
| | b'/2 | unsupported semispan (distance from outer face of wing mounting) |
| | c | airfoil section chord of basic wing panel, measured parallel to plane of symmetry. |
| | с' | local streamwise chord of total wing planform which includes leading-edge glove and trailing-edge extension |
| | ē | wing mean aerodynamic chord |
| | $c_{\mathbf{m}}$ | wing section pitching-moment coefficient about 0.25c, |
| | | $\int_{0}^{1} \left(C_{p,L} - C_{p,U} \right) \left(0.25 - \frac{x}{c} \right) d\left(\frac{x}{c} \right)$ |
| | c _n | wing section normal-force coefficient, $\int_{0}^{1} (C_{p}, L - C_{p}, U) d(\frac{x}{c})$ |
| | c_p | pressure coefficient |
| | $C_{p,sonic}$ | pressure coefficient corresponding to local Mach number of 1.0 |
| | $c_{\mathbf{L}}$ | lift coefficient, $\frac{\text{Lift}}{\text{qS}}$ |
| | c_D | drag coefficient, $\frac{\text{Drag}}{\text{qS}}$ |
| | C _m | pitching-moment coefficient, $\frac{\text{Pitching moment about } \overline{c}/4}{\text{qS}\overline{c}}$ |
| | c_{N} | normal-force coefficient, Normal force qs |
| | C _A | axial-force coefficient, Axial force qS |
| | D | diameter |
| | l | body length |
| | M | Mach number |
| | q | free-stream dynamic pressure |
| | R | Reynolds number based on \bar{c} |
| | S | total wing area |
| | $\widetilde{\mathbf{u}}$, $\widetilde{\mathbf{v}}$, $\widetilde{\mathbf{w}}$ | fluctuating velocity components |
| | U_{∞} | free stream velocity |
| | x | distance measured from leading edge of wing or from nose of body, positive rearward |
| | x' | streamwise distance measured from leading edge of total wing planform |
| | у | spanwise distance measured from body centerline |
| | у' | spanwise distance measured from outer face of wing mounting block |
| | z' | vertical distance measured from model reference water line 26.205 cm (10.317in.) |
| | | |

| $\frac{\partial \Delta \alpha}{\partial \mathbf{n}}$ | wing-twist influence coefficient due to normal load at $c/4$ point |
|--|--|
| $\frac{\partial \Delta \alpha}{\partial \mathbf{m}}$ | wing-twist influence coefficient due to moment about $c/4$ point |
| α | angle of attack of wing-body centerline |
| Δα | angle of attack of wing station minus angle of attack of wing-body centerline |
| δ | vertical wing deflection under load |
| δ _h | horizontal-tail deflection angle referred to a model water line, positive when trailing edge down, deg |
| θ | circumferential location of pressure orifices on rear of fuselage, deg |
| φ | built-in twist angle |
| Subscripts | |
| L | lower surface |
| U | upper surface |

TABLE 1. - WING COORDINATES ALONG STREAMWISE CHORDS

| z'/c' | Lower | -0.0057 | -00064 | 0068 | 0071 | 0075 | 0078 | - 0085 | 0088 | 0091 | 0094 | 000 | - 0103 | 0107 | 0110 | 0113 | 0116 | 0122 | 0125 | 0128 | 0134 | 0136 | 0139 | 0145 | 0148 | 0150 | 0156 | 0158 | 0161 | -0166 | 0168 | 0171 | 0173 | 0178 | 0180 | 0182 |
|-------|------------------|---------|--------|--------|-------|-------|-------|--------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|
| 2 | Upper surface | 0.0777 | .0784 | .0787 | .0790 | .0793 | 1610. | 0803 | 0800 | .0809 | 20812 | 0813 | 0821 | .0824 | .0827 | .0829 | .0832 | .0838 | .0840 | .0843 | .0848 | .0851 | .0853 | .0858 | .0860 | .0863 | 0868 | .0870 | .0872 | 0877 | .0879 | .0881 | .0333 | 0887 | .0889 | .0391 |
| | x./c. | 0.0958 | 1000 | .1022 | .1043 | 1065 | 1110 | 1132 | .1155 | .1178 | 1021. | 1224 | 1272 | 1296 | .1321 | .1345 | 1370 | .1420 | .1446 | .1471 | .1523 | .1550 | 1576 | .1630 | .1658 | .1685 | 1741 | .1769 | 1797 | 1855 | .1884 | .1913 | 1943 | 2003 | .2033 | .2063 |
| ,c, | Lower | 0.0133 | .0123 | .0118 | .0114 | .0109 | •0104 | 0095 | 1600. | 9800. | 2800. | .00.0 | 6900 | .0065 | 1900. | .0056 | .0052 | .0044 | 0040 | .0036 | .0027 | .0024 | 0000 | .0012 | 8000 | •0004 | 0004 | 0007 | 1.00 | 6100 | 0023 | 0026 | 0030 | - 0038 | 0042 | 0046 |
| z,/c. | Upper | 0.0608 | .0617 | .0621 | .0625 | .0629 | .0633 | 0641 | .0645 | .0649 | .0053 | 1990 | 0665 | 6990 | .0673 | .0677 | .0681 | .0688 | .0692 | .00700 | .0703 | 7070. | 0710 | .0717 | .0720 | .0723 | .0730 | .0733 | .0736 | 07.43 | .0747 | .0750 | 6070. | 0920 | .0764 | .0767 |
| | x,/c, | 0.0240 | .0261 | .0272 | .0283 | .0294 | .0306 | 0330 | .0342 | .0355 | 8980. | 0394 | 0408 | .0421 | .0435 | .0449 | .0464 | .0493 | .0508 | .0523 | .0555 | .0571 | 1050. | .0620 | .0637 | .0654 | 0689 | .0707 | .0725 | 0761 | .0780 | .0799 | .0818 | 0857 | .0877 | 7680. |
| ر. | Lower | 0.0379 | .0368 | .0362 | .0357 | 1050. | 0340 | .0334 | .0329 | .0323 | .0318 | 0307 | 0301 | .0296 | .0290 | .0285 | .0279 | .0268 | .0263 | .0252 | .0246 | .0241 | .0236 | .0225 | .0220 | .0214 | .02C4 | .0198 | .0193 | 0183 | .0178 | .0172 | .0167 | 0157 | .0152 | .0147 |
| z./c. | Upper Surface | 0.0379 | .0389 | .0395 | .0400 | 0400 | 0.417 | 0422 | .0428 | .0433 | 9750 | 0444 | 0454 | .0460 | .0465 | .0470 | 0481 | .0486 | .0491 | .0501 | .0506 | .0511 | .0516 | .0526 | .0531 | .0536 | .0546 | .0550 | .0555 | 0565 | .0569 | .0574 | 8750. | 0587 | .0591 | .0596 |
| | x./c. | 0 | 0000 | .00010 | .0002 | .0003 | 500 | 0000 | 6000 | .001 | -0014 | 910 | 0022 | .0025 | .0029 | .0033 | .003 | .0045 | .0050 | 0900 | .0065 | 1200. | 2000 | 6800 | .0095 | 20102 | 0116 | .0123 | .0131 | 0147 | .0155 | .0163 | 27.10. | 0010 | .0200 | .0209 |

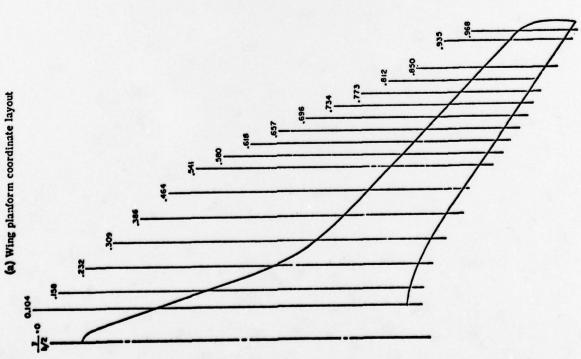


TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Continued

| | z./c. | Lower | -0.0191 -0.0191 -0.0194 -0.0195 -0.0196 -0.0196 -0.0197 -0.0198 -0.0198 -0.0198 -0.0199 -0.019 |
|-------------------------------|-------|------------------|---|
| | .2 | Upper | 0.0881 0.0880 0.0881 0.0873 0.0874 0.0874 0.0875 |
| 17 in.) | | x,/c, | 0.2747 2.28866 2.28866 2.28866 3.30966 3.30966 3.30776 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.30776 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.30776 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.30776 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.3076 3.30776 3.3076 |
| c' = 36.873 cm (14.517 in.) | z./c. | Lower | -0.0104 -0.0107 -0.0103 -0.0121 -0.0123 -0.0123 -0.013 |
| c' = 36.8′ | .2 | Upper surface | 0.0833 0.0834 0.0834 0.0844 0.0844 0.0844 0.0853 0.0853 0.0874 0.0874 0.0874 0.0873 0.0883 0. |
| = 0.158; | | x,/c, | 0.1373 14633 114633 115523 115523 115523 11672 11702 11702 11702 11702 11703 1 |
| (c) y/b/2 | z./c. | Lower | 0.0384 .0254 .02557 .0256 .0156 .0156 .0157 .0157 .0157 .0017 |
| | /,2 | Upper Surface | 0.0384 0.0537 0.0537 0.0538 0.0538 0.0638 0.0638 0.0638 0.0638 0.0738 0.0828 0. |
| | | x./c. | 0 00000 00000 00119 00119 00209 00209 00209 00308 00418 00557 0055 |
| | ,e, | Lower | -0.0238 0238 0237 0235 - |
| .) - Concluded | 2,/c, | Upper | 0.0876 0.0873 0.0873 0.0858 0.0858 0.0858 0.0858 0.0858 0.0858 0.0858 0.0858 0.0858 0.0738 0.0530 0.0530 0.0530 0.0530 0.0530 0.0530 0.0132 0.0132 |
| c' = 45.839 cm (18.047 in.) | | x,/c, | 0.3833 .3875 .3875 .3917 .4087 .4087 .4130 .4217 .4217 .4217 .4306 .7406 |
| 4; c' = 45.839 | c. | Lower | -0.0189 -0.0189 -0.0194 -0.0194 -0.0195 -0.0203 -0.0208 -0.020 |
| (b) $\frac{y}{b/2} = 0.104$; | z,/c. | Upper | 0.0896 0.0899 0.0900 0.0903 0.0903 0.0903 0.0913 0.0813 |
| | | x./c. | 21156 2219 2219 2219 2219 2219 2219 2219 221 |
| | | | |

(i) $\frac{y}{b/2} = 0.580$; c' = 15.624 cm (6.151 in.)

TABLE 1,- WING COORDINATES ALONG STREAMWISE CHORDS - Continued.

| c' = 16.231 cm (6.390 in.) |
|---|
| c' = 12.537 cm (4.936 in.) |
| c' = 18.654 cm (7.344 in.) c' = 12.537 cm (4.936 in.) |
| c' = 20.803 cm (8.192 in.) |
| c' = 26.355 cm (10.376 in.) |
| |

| , c, | Lower | 0.0038 0.0058 0.0029 0.0029 0.0037 0.0053 | - 00153 - 0015 |
|-------|------------------|---|---|
| z./c. | Upper | 0.0082 0.0106 0.0135 0.0136 0.0189 0.0216 0.0218 0.0340 0.0369 0.0450 0.0504 0.0504 | 0626 0646 0662 06673 0687 0688 0688 0688 0638 0638 0638 0638 0638 |
| | x./c. | 0 .0002 .00011 .00013 .0003 .0003 .0004 .0007 .0 | 3823 54446 55347 65329 65329 65329 77284 7775 8213 8213 8213 9169 9189 9183 |
| | Lower | 0.0122 .0097 .0068 .0066 .0023 .0001 .0001 0013 0145 0145 0193 0193 | 0173 0147 0112 0005 0005 0005 .0013 .00141 .00163 .00163 .00163 .0017 .0017 .0017 .0017 .0017 |
| z,/c, | Upper | 0.0122 0.0146 0.0175 0.0197 0.0219 0.0257 0.0289 0.0343 0.0343 0.0410 0.0518 0.0578 | 0654 0.0656 0.0686 0.0702 0.0702 0.0663 0.0663 0.0592 0.0592 0.0593 0.0593 |
| | x./c. | 0 0002 00011 00013 00063 00063 00063 00086 00429 00429 00570 | |
| | Lower | 0.0193 .0168 .0115 .0091 .0051 .0050 0029 0087 0122 0145 0145 | 0.01194 0.0119 |
| z,/c, | Upper | 0.0218 0.0218 0.0218 0.0248 0.0294 0.0332 0.0459 0.0459 0.0458 0.0510 0.0610 | .0707 .0729 .0729 .0729 .0735 .0725 .0725 .0676 .0676 .0676 .0678 |
| | x,/c, | 0 0002 00023 00023 0004 00044 00088 00291 00291 005788 005788 005788 00578 005 | 3824 43384 53344 53341 63341 77284 77284 93118 93118 9362 9363 9363 9363 |
| ۰, | Lower | 0.0255 .0229 .0136 .0113 .0124 .0024 .0027 .0037 .0037 .0037 .0037 .0039 | 0111 0088 0057 0017 0017 0017 0017 0427 0427 0431 0431 0431 0431 0431 0431 0431 |
| z,/c, | Upper surface | 0.0255 .0282 .0314 .0314 .0381 .0381 .0402 .0493 .0493 .0563 .0563 .0697 .0758 | 0773 0773 0773 0773 0768 0768 0749 0733 0713 0655 0655 0655 0655 0655 0655 |
| | x,/c, | 0.0002 .00013 .0013 .0069 .0069 .0069 .00613 .00613 .00613 .1777 .1777 .1777 .1777 .1777 .1777 .1777 .1777 .1777 .1777 | .3922 .4430 .4430 .54927 .5893 .6373 .6373 .7306 .7766 .7766 .9871 .9852 .9852 |
| | Lower | 0.0318 .0251 .0254 .0254 .0106 .0169 .0147 .0007 .0007 .0003 | 0081 0054 0023 .0023 .0023 .0023 .0233 .0333 .0441 .0449 .0449 .0449 .0449 |
| z,/c, | Upper | 0.0318 0.0349 0.0385 0.0430 0.0486 0.0597 0.0677 0.0677 0.0677 0.0677 0.0673 0.0673 0.0673 0.0673 0.0673 0.0673 0.0673 | .0833 .0822 .0780 .0794 .0763 .0763 .0765 .0658 .0658 .0552 .0553 .0523 .0523 |
| | x./c. | 0 .0004 .0018 .0035 .0067 .00131 .0131 .0626 .06 | .4362 .4846 .5318 .5318 .6682 .7120 .7124 .7549 .8388 .8799 .9404 .9604 .9806 .9921 |
| | Lower | 0.0338 .0336 .0284 .0246 .0206 .0167 .0167 .0080 .0080 .0090 .0073 .0073 .0073 | 0004 0003 .0033 .0128 .0228 .0334 .0334 .0336 .0339 .0339 .0308 |
| z./c. | Upper surface | 0.0378 0.0420 0.0471 0.0507 0.0545 0.0581 0.0764 0.0764 0.0782 0.0826 0.0843 0.0843 0.0859 | .0805 .0780 .0751 .0755 .0659 .0669 .0544 .0578 .0544 .0566 .0414 .0381 |
| | x./c. | | .5322 .6575 .6575 .6962 .7335 .8043 .8043 .9038 .9361 .9683 .9683 .9937 |

.0497 .0525 .0525 .0520 .0530 .0530 .0619 .0620 .0619 .0637 .0638 .0648 .0546

- 0219 - 0219 - 0219 - 01178 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 00000 - 0

.3823 .4338 .5344 .6329 .6329 .6329 .7728 .7752 .8718 .9118 .9341 .9362 .9182

-.0229 -.0199 -.0159 -.0013 -.0018 -.0018 -.0018 -.0025 -.0025 -.00436 -.0436 -

.0564 .0588 .0588 .0626 .0650 .0650 .0650 .0650 .0650 .0650 .0650 .0650 .0650 .0650

.3823 .4338 .5344 .6329 .6329 .7728 .7752 .8669 .9118 .9341 .9341 .9182 .9182

-.0209 -.0160 -.0142 -.0033 -.

.0597 .0637 .0637 .0661 .0661 .0672 .0672 .0673 .0674 .0647 .0579

.3823 .4336 .4846 .5347 .6329 .6810 .7752

TABLE 1. - WING COORDINATES ALONG STREAMWISE CHORDS - Continued

 $\frac{y}{b/2} = 0.618;$ 3

c' = 15.019 cm (5.913 in.)

(k) $\frac{y}{b/2} = 0.657$;

c' = 14.412 cm (5.674 in.)

 $\frac{y}{b/2} = 0.696;$ 3

c' = 13.807 cm (5.436 in.)

(m) $\frac{y}{b/2} = 0.734$;

c' = 13.200 cm (5.197 in.)

(n) $\frac{y}{b/2} = 0.773$;

c' = 12,596 cm (4.959 in.)

c' = 11.989 cm (4.720 in.) (o) $\frac{y}{b/2} = 0.812$;

| | x./c. | |
|-------|------------------|--|
| .5 | Lower | |
| z,/c, | Upper surface | |
| | x./c, | |

z'/c'

z./c.

Upper

Lower

Upper

Lower

Upper

Lower

Upper

, o/.z

z./c.

x./c.

| z./c. | ce Surface |
|-------|------------|
| | Upper |
| | v./c |

| 1,2 | Upper surface | .017 | 0151 | .012 | 010 | .008 | 900 | .004 | .001 | 33 | 7 | 9 | 5 | 6 | 53 | 0 | 35 | 8 | 49 | 45 | 18 | 50 | 52 | 54 | .0561 | 57 | 22 | 26 | 24 | 21 | 48 | 12 | 7 | 38 | |
|-------|------------------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|-------|------|------|----|------|------|-----|------|------|-------|-----|-----|-----|-----|------|-----|-----|----|-------|-----|
| | x./c. | 0 | 000 | 5 | 35 | 24 | 90 | 38 | 4 | 28 | 12 | 22 | 35 | 13 | 38 | .2232 | 17 | 20 | 83 | 33 | 484 | 534 | 584 | 632 | 81 | 728 | 775 | 821 | 866 | 911 | 34 | 26 | 32 | .9913 | 2 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ·c. | Lower | 12 | 0151 | .017 | 13 | .021 | .023 | 25 | .028 | 32 | 34 | 36 | 37 | 38 | 38 | .037 | .035 | 33 | C | 026 | .022 | 16 | 010 | .003 | 050 | 15 | 54 | 35 | 37 | 33 | 38 | 36 | 33 | .0301 | 7.7 |
| z,/c, | Upper surface | 12 | 0106 | 07 | .005 | .003 | 7 | 000. | 05 | 8 | 12 | 15 | 19 | 7 | 20 | 35 | 33 | 3 | 46 | 67 | 051 | 054 | 056 | 057 | .0590 | 059 | 053 | 028 | 056 | 053 | 020 | 047 | 43 | 33 | |
| | x./c. | 0 | 0 | 0 | 05 | 04 | 90 | 008 | 014 | 028 | 042 | 057 | 085 | 13 | 168 | 223 | 22 | 36 | 82 | 433 | 184 | 534 | 584 | 632 | 81 | 178 | 775 | 821 | 998 | 911 | 934 | 56 | 18 | .9913 | 3 |
| | | | | | | ALDAS: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Lower | 800. | 0108 | .013 | .015 | .017 | .019 | .021 | .023 | .028 | .030 | .032 | .034 | .035 | .035 | .034 | .032 | .030 | 27 | .024 | .019 | 014 | .003 | .001 | 07 | 017 | 026 | 034 | 039 | 0.40 | 040 | 3 | 34 | .0314 | 3 |

-0.0173 -0.0196 -0.0262 -0.0262 -0.0262 -0.0363 -0.0363 -0.0416 -0.0416 -0.0416 -0.0416 -0.0416 -0.0416 -0.0416 -0.0368 -0.0368

-0.0083 -.0063 -.0035 -.0005 0.0025 0.0041 0.0130 0.0130 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140

-0.0041 -0.0054 -0.0092 -0.0135 -0.0170 -0.0170 -0.02411 -0.02411 -0.0317 -0.0317 -0.0306 -0.0306

-0.0041 -.0018 -.0010 .0052 .0072 .00175 .0119 .0214 .02291 .0328 .0434 .0534

.00023 .0023 .0023 .0040 .0040 .0042 .0042 .00429 .00570 .

0.0002 -.0027 -.0075 -.0075 -.00114 -.0120 -.020

0.0002 0.0025 0.0054 0.0016 0.0116 0.018 0.0287 0.0287 0.0337 0.0472 0.0507

.0002 .0001 .0023 .0040 .0040 .0063 .0040

0.0043 .0019 .0031 .0031 .0033 .0031 .0045 .0019 .0194 .0255 .0255

0.0043 .0066 .0095 .0118 .0178 .0178 .0259 .0298 .0328 .0328 .0328 .0378

00023 00023 00023 00040 00040 00040 00042 00429 00429 00520

TABLE 1. - WING COORDINATES ALONG STREAMWISE CHORDS - Concluded.

c' = 11.382 cm (4.481 in.) (p) $\frac{y}{b/2}$ = 0.850;

(q) $\frac{y}{b/2} = 0.935$;

c' = 10.051 cm (3.957 in.)

(r) $\frac{y}{b/2} = 0.968$;

c' = 9.467 cm (3.727 in.)

TABLE II. - TUNNEL TEST CONDITIONS

1b/ft²

N/m²

per ft

850 850 850 850 850 850 850

4.5 x 10⁶
4.5
4.5
4.6
4.8

40 698 40 698 40 698 40 698 40 698 40 698 21 546 8 571

179

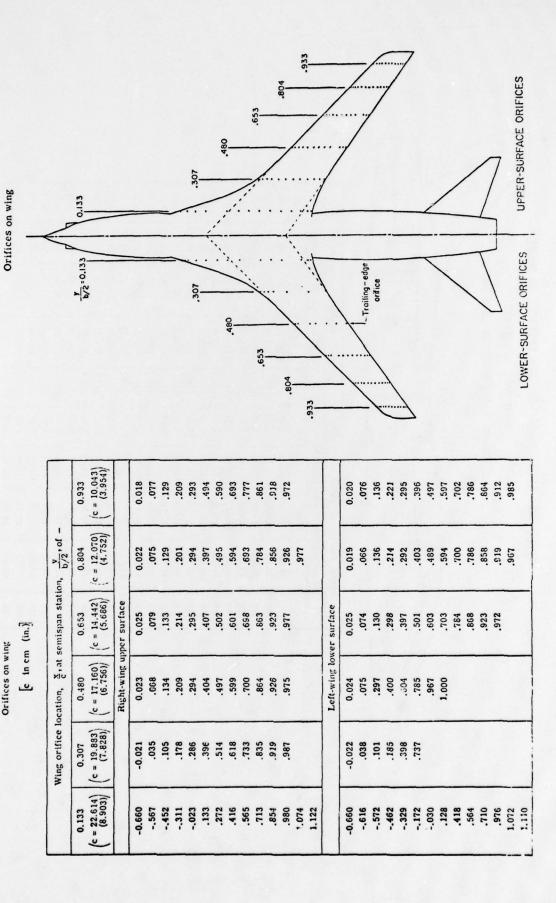
3.1

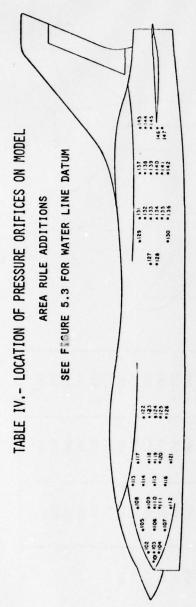
Dynamic pressure

| 2 | | numbe | _ | - | _ | v | 100 | _ | | | | | | | | | | | | | | | | | | |
|-----------------------|------------------|----------------|--------|--------------|--------|-------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|--------|-------|-------|--------|
| ABLE II IUNNEL IESI C | | Reynolds numbe | | per m | | | 14.8 x 1 | 14.8 | 14.8 | 14.8 | 15.1 | 15.7 | 17.1 | 13.1 | 10.2 | | | | | | | | | | | |
| IABLE III | | Temperature | | ا | | | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | | | | | | | | | | | |
| | | Tempe | | × | | | 322 | 322 | 322 | 322 | 322 | 322 | 322 | 322 | 322 | | | | | | | | | | | |
| | | Mach | number | | | | 0.1 | 66. | .98 | .97 | .95 | .90 | .80 | .50 | .25 | | | | | | | | | | | |
| ,c, | Lower | -0.0382 | 0432 | 0450 | 0467 | 0497 | 0522 | 0580 | 0598 | 0618 | 0611 | 0560 | 0521 | 0478 | 0373 | 0314 | 0166 | 0075 | 0101 | .0185 | .0248 | .0278 | 92.00 | 0215 | .0203 | F010. |
| ,3/,z | Upper | -0.0382 | 0339 | 0321 | 0301 | 0266 | 0235 | 0180 | 0108 | 0057 | .0052 | .0147 | .0188 | .0230 | .0303 | .0368 | .0395 | .0417 | 0434 | .0453 | .0448 | .0425 | .0403 | 0322 | .0310 | |
| | x./c. | 0 0002 | .0011 | .0023 | 0040 | 9800 | .0143 | .0286 | .0570 | .0852 | .1686 | .2770 | .3330 | .3823 | .4846 | 5841 | .6329 | .6810 | 7752 | .8213 | .8669 | .9118 | 19561 | 9852 | .9913 | 1.0000 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | _ |
| z./c. | Lower | -0.0330 | 0378 | 0397 | 0415 | 0448 | 0473 | 0509 | | 0568 | | | 0481 | 0441 | 0343 | 0221 | 0141 | 0050 | .0135 | .0215 | .0274 | .0299 | 0620. | .0233 | .0221 | .0202 |
| ',z | Upper surface | -0.0309 | 0283 | 0264 | -,0245 | 0213 | 0185 | 0133 | 0064 | 0014 | 0000 | .0189 | .0231 | .0271 | .0340 | .0401 | .0426 | .0447 | 0477 | .0477 | .0468 | .0441 | 0.0419 | .0342 | .0330 | |
| | x./c. | 0 | .0011 | .0023 | 0600 | 9800 | .0143 | .0286 | .0570 | .0852 | .1686 | .2770 | .3300 | .3823 | .4846 | 5841 | .6329 | .6810 | .7752 | .8213 | 6998. | 9118 | 0562 | 9852 | .9913 | 1.0000 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | _ |
| ,c, | Lower | -0.0221 | • | • | • | • | ' | 0405 | ' | • | 0465 | " | • | 0361 | 0271 | 0153 | 7.0077 | .0014 | .0202 | .0282 | .0334 | .0353 | 0350 | .0296 | .0269 | .0570 |
| z,/c, | Upper | -0.0221 | 0172 | 0153 | 0133 | 0099 | 0068 | 0014 | .0057 | 0105 | .0208 | .0304 | .0344 | .0379 | .0440 | .0493 | .0513 | .0529 | .0547 | .0542 | .0526 | .0494 | 0438 | .0397 | .0367 | |
| | x,/c. | 0,0002 | .0011 | .0023 | .0040 | .0086 | .0143 | .0286 | .0570 | 1132 | .1686 | .2770 | .3300 | 4338 | 4846 | .5841 | .6329 | .6810 | .7752 | .8213 | 6998 | .9118 | 9562 | .9782 | 1,000 | 2000 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

TABLE III. - LOCATION OF PRESSURE ORIFICES ON MODEL

Orifices on wing





| | Fore fusela | Fore fuselage area-rule addition | addition | | | Aft fuselag | Aft fuselage area-rule addition | addition | |
|---------|-------------|---|----------|-----------|---------|-------------|---------------------------------|------------------|----------|
| Onig Co | Model fusc | Model fusciage station Model water line | Model wa | ater line | Origina | Model fusel | Model fuselage station | Model water line | ater lir |
| 3 | ш | in. | cm | in. | 3 | cm | in. | cm | in. |
| 101 | 30.92 | 12.17 | 20.75 | 8.17 | 127 | 103.81 | 40.87 | 22.10 | 8.70 |
| 102 | 33.12 | 13.04 | 22.10 | 8.70 | 128 | 103.81 | 40.87 | 20.75 | 8.17 |
| 103 | 33.12 | 13.04 | 20.75 | 8.17 | 129 | 109.32 | 43.04 | 24.74 | 9.74 |
| 104 | 33.12 | 13.04 | 19.43 | 7.65 | 130 | 109.32 | 43.04 | 18.11 | 7.13 |
| 105 | 38.66 | 15.22 | 23.42 | 9.22 | 131 | 114.88 | 45.22 | 24.74 | 9.74 |
| 106 | 38.66 | 15.22 | 20.75 | 8.17 | 132 | 114.86 | 45.22 | 23.42 | 9.22 |
| 107 | 38.66 | 15.22 | 18.11 | 7.13 | 133 | 114.86 | 45.22 | 22.10 | 8.70 |
| 108 | 44.17 | 17.39 | 24.74 | 9.74 | 134 | 114.86 | 45.22 | 20.75 | 8.17 |
| 109 | 44.17 | 17.39 | 22.10 | 8.70 | 135 | 114.86 | 45.22 | 19.43 | 7.65 |
| 110 | 44.17 | 17.39 | 20.75 | 8.17 | 136 | 114.86 | 45.22 | 18.11 | 7.13 |
| 111 | 44.17 | 17.39 | 19.43 | 7.65 | 137 | 125.91 | 49.57 | 24.74 | 9.74 |
| 112 | 44.17 | 17.39 | 16.79 | 6.61 | 138 | 125.91 | 49.57 | 23.42 | 9.22 |
| 113 | 49.71 | 19.57 | 26.06 | 10.26 | 139 | 125.91 | 49.57 | 22.10 | 8.70 |
| 114 | 49.71 | 19.57 | 23.42 | 9.22 | 140 | 125.91 | 49.57 | 20.75 | 8.17 |
| 1118 | 49.71 | 19.57 | 20.75 | 8.17 | 141 | 125.91 | 49.57 | 19.43 | 7.65 |
| 116 | 49.71 | 19.57 | 18.11 | 7.13 | 142 | 125.91 | 49.57 | 18.11 | 7.13 |
| 111 | 55.22 | 21.74 | 24.74 | 9.74 | 143 | 136.93 | 53.91 | 24.74 | 9.74 |
| 118 | 55.22 | 21.74 | 22.10 | 8.70 | 144 | 136.93 | 53.91 | 23.42 | 9.22 |
| 119 | 55.22 | 21.74 | 20.75 | 8.17 | 145 | 136.93 | 53.91 | 22.10 | 8.70 |
| 120 | 55.22 | 21.74 | 19.43 | 7.65 | 146 | 136.93 | 53.91 | 20.75 | 8.17 |
| 121 | 55.22 | 21.74 | 16.79 | 6.61 | 147 | 136.93 | 53.91 | 19.43 | 7.65 |
| 122 | 66.27 | 26.09 | 23.42 | 9.22 | | | | | |
| 123 | 66.27 | 26.09 | 22.10 | 8.70 | | | | | |
| 124 | 66.27 | 26.09 | 20.75 | 8.17 | | | | | |
| 125 | 66.27 | 26.09 | 19.43 | 7.65 | | | | | |
| 126 | 66.27 | 26.09 | 18.11 | 7.13 | | | | | |

TABLE IV. - LOCATION OF PRESSURE ORIFICES ON MODEL - Concluded.

| | Model fuselage station | th. | 63.17 | 62.63 | 62.03 | 61.47 | 60.73 | 60.19 | 62.66 | 62.14 | 61.50 | 60.87 | 60.22 | 62.66 | 62.06 | 61.44 | 60.77 | 60.19 | 63.30 | 62.61 | 62.03 | 61.42 | 60.74 | 60.24 |
|------------------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|--------|---|--------|--------|--------|-------------|--------|--------|--------|--------|--------|--------|--------|
| luselage | Model fuse | сш | 160.45 | 159.08 | 157.56 | 156.13 | 154.25 | 152.88 | 159.16 | 157.84 | 156.21 | 154.61 | 152.96 | 159.16 | 157.63 | 156.06 | 154.36 | 152.38 | 160.78 | 159.03 | 157.56 | 156.01 | 154.28 | 153.01 |
| Orifices on rear of fuselage | 7 | gap 'a | 179.7 | 179.7 | 179.7 | 181.0 | 180.6 | 179.8 | 137.1 | 137.3 | 136.6 | 135.5 | 135.2 | 45.1 | 45.7 | 45.5 | 45.2 | 45.1 | 8.1 | 8.2 | 8.6 | 9.2 | 8.6 | 9.6 |
| | O-iffice | Ornice | - | 8 | m | 4 | 2 | 9 | 7 | 80 | 6 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Orllices on rear of fuselage | | | | | | | | | 71 | \ | 17 8 19 20 21 22 | | Water line 22.09cm(8.696ln.) 12 13 14 15 16 | | | 123456 | Section A-A | } | | | | | | |

TABLE V. - TEST CONDITIONS FOR TABULATED DATA *

| M | a, deg | c_{L} |
|------|--------|---------|
| 0.50 | -4.08 | -0.339 |
| | 0 | 0.039 |
| | 4.0 | 0.396 |
| | 8.0 | 0.73 |
| | 11.07 | 0.952 |
| 0.80 | -3.98 | -0.372 |
| | 0.03 | -0.034 |
| | 4.02 | 0.427 |
| | 8.14 | 0.792 |
| | 11.22 | 0.990 |
| 0.90 | -3.82 | -0.389 |
| | 0.02 | 0.024 |
| | 3.97 | 0.461 |
| | 8.17 | 0.863 |
| 0.95 | -3.97 | -0.440 |
| | -0.09 | 0.012 |
| | 3.96 | 0.495 |
| | 8.15 | 0.902 |
| 0.99 | -3.96 | -0.459 |
| | -0.05 | -0.004 |
| | 3.43 | 0.440 |
| | 7.99 | 0.893 |

^{*}Angles of attack slightly different for side-fuselage pressure data in Table VIII.

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; 8 - -2.5 M = 0.50

| | | | | | $\alpha = -4.08$ | o; C _L = -0.3 | 139 | | | | |
|-------|------|-------|------|-------|------------------|--------------------------|--------|-------|--------|------|--------|
| STA | .155 | STA | .307 | STA | .480 | STA | . 653 | STA | .804 | STA | .933 |
| X/C | CF | x/c | CP | x/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | LPPER SLE | FACE | | | | | |
| 660 | .635 | 021 | .29+ | .023 | .360 | .025 | . 373 | .022 | . 459 | .018 | . 499 |
| 501 | 007 | .035 | .124 | .068 | .184 | .079 | .217 | .075 | .253 | .077 | .197 |
| 452 | 076 | .165 | .060 | .134 | .099 | .133 | .147 | .129 | .185 | .129 | .182 |
| 311 | 119 | .170 | .013 | .209 | .C46 | .214 | .092 | .201 | .120 | .209 | -117 |
| 023 | 099 | .205 | 023 | .294 | -018 | . 295 | . 049 | .294 | .081 | .293 | .059 |
| .133 | 041 | . 196 | 043 | .404 | 010 | .4C7 | .014 | .397 | .040 | .494 | 016 |
| .212 | 021 | .514 | 032 | . 497 | 044 | .502 | 029 | . 495 | 003 | .590 | 055 |
| -416 | | .614. | 000 | .599 | 065 | .601 | 056 | .594 | 046 | .693 | 096 |
| .565 | .000 | .153 | 065 | .700 | 105 | . 658 | 100 | .593 | 088 | .777 | 133 |
| .713 | .012 | .835 | 691 | . 364 | 144 | . 86 3 | 167 | . 784 | 133 | .861 | 133 |
| .854 | 016 | . 114 | 680 | .926 | 125 | .923 | 147 | .856 | 158 | .918 | 140 |
| .580 | 026 | 134. | 048 | .975 | 057 | .977 | 057 | .926 | 153 | .972 | 061 |
| 1.074 | 041 | | | | | | | .977 | 042 | | |
| 1.124 | 023 | | | | | | | | | | |
| | | | | | LENER SUR | | | | | | |
| 663 | 466 | 022 | 621 | .024 | -1.292 | .025 | -1.911 | .019 | -2.183 | .020 | -1.642 |
| 616 | 104 | .638 | 611 | .675 | 896 | .130 | 692 | .066 | -1.082 | .076 | -1.157 |
| 512 | 210 | .101 | 585 | .257 | 386 | . 258 | 344 | .136 | 695 | -136 | 936 |
| 462 | 211 | .165 | 409 | .400 | 31C | . 357 | 306 | .214 | 485 | .221 | 472 |
| 321 | 207 | . 398 | 250 | .604 | 191 | .501 | 236 | .292 | 389 | .295 | 394 |
| 174 | 175 | .737 | .025 | .765 | .065 | .603 | 09€ | . 403 | 308 | .396 | 267 |
| 030 | 249 | | | .507 | .170 | . 103 | .013 | .489 | 262 | .497 | 174 |
| .120 | 242 | | | 1.000 | .043 | . 184 | . 659 | .594 | 171 | .597 | 090 |
| .414 | 202 | | | | | .860 | .142 | .700 | 030 | .702 | -006 |
| .564 | 130 | | | | | .923 | .158 | . 786 | .048 | .786 | .049 |
| .710 | 015 | | | | | .972 | .122 | .858 | . 089 | .864 | .075 |
| .976 | .175 | | | | | | | .919 | -145 | .912 | -089 |
| 1.072 | .172 | | | | | | | .967 | .114 | | |
| 1.110 | .135 | | | | | | | | | | |
| | 1590 | | 2158 | | 2861 | | 3294 | | 3574 | | 3163 |
| 4 - | CL84 | | 0451 | | 6644 | - | c819 | | 0702 | | 0720 |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.50 - Continued. M = 0.50

| | | | | | $\alpha = 0^{\circ};$ | $C_{L} = 0.0$ | 039 | | | | |
|-------|------|------|-------|-------|-----------------------|---------------|------|---|------|------|-------|
| STA | .133 | STA | . 307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| X/C | CP | X/C | CF | X/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | LPPER SUR | FACE | | | | | |
| 660 | 006 | 021 | 082 | .023 | 142 | .025 | 092 | .022 | .043 | .018 | .153 |
| 507 | 108 | .035 | 249 | .068 | 188 | .079 | 143 | .075 | 095 | .077 | 152 |
| 452 | 193 | .105 | 230 | .134 | 184 | .133 | 138 | .129 | 096 | .129 | 065 |
| 311 | 235 | .178 | 239 | .209 | 195 | .214 | 145 | .201 | 116 | .209 | 072 |
| 023 | 198 | .286 | 220 | .294 | 183 | . 295 | 140 | .294 | 108 | .293 | 097 |
| .133 | 140 | .396 | 196 | .404 | 170 | .407 | 149 | .397 | 113 | .494 | 112 |
| .272 | 114 | .514 | 154 | . 497 | 169 | . 502 | 154 | .495 | 137 | .590 | 134 |
| .416 | 080 | .618 | 163 | .599 | 179 | .601 | 171 | .594 | 159 | .693 | 163 |
| .565 | 057 | .733 | 142 | .700 | 191 | .698 | 198 | .693 | 183 | .777 | 182 |
| .713 | 050 | .835 | 139 | .864 | 201 | .863 | 225 | .784 | 211 | .861 | 172 |
| .854 | 060 | .919 | 119 | .926 | 154 | .923 | 169 | .856 | 216 | .918 | 162 |
| .980 | 060 | .987 | 049 | .975 | 068 | .977 | 050 | .926 | 184 | .972 | |
| 1.074 | 061 | | | | | | | .977 | 057 | | 076 |
| 1.122 | 032 | | | | | | | • | | | |
| | | | | | LCHEF SUR | FACE | | | | | |
| 660 | .055 | 022 | 025 | .024 | 226 | .025 | 287 | -019 | 561 | .020 | 523 |
| 616 | 030 | .038 | 209 | .075 | 316 | .130 | 276 | .066 | 458 | .076 | 459 |
| 572 | 061 | .101 | 217 | .257 | 212 | .298 | 187 | .136 | 343 | .136 | 371 |
| 462 | 095 | .185 | 202 | .400 | 155 | . 397 | 176 | .214 | 227 | .221 | 225 |
| 329 | 095 | .398 | 151 | .604 | 113 | .501 | 140 | .292 | 186 | .295 | 184 |
| 172 | 091 | .737 | .076 | .785 | .135 | .603 | 052 | .403 | 163 | .396 | 150 |
| 030 | 157 | | | .967 | .163 | .703 | .041 | .489 | 149 | .497 | 114 |
| .123 | 190 | | | 1.000 | .019 | .784 | .127 | .594 | 114 | .597 | 058 |
| .418 | 107 | | | | | .868 | .181 | .700 | .034 | .702 | -065 |
| .564 | 054 | | | | | .923 | .208 | .786 | -138 | .786 | .151 |
| .710 | .052 | | | | | .972 | .155 | .858 | .207 | .864 | -209 |
| .976 | .200 | | | | | • * * * * | | .919 | .216 | .912 | .213 |
| 1.072 | .175 | | | | | | | .967 | .143 | .412 | .213 |
| 1.110 | .132 | | | | | | | .701 | .143 | | |
| CN= . | 1399 | | 990 | | 0844 | . (| 808 | | 0278 | | 203 |
| CM= | 0292 | | 1419 | | 0653 | | 1726 | | 776 | | 786 |
| | | | | | | | | S. Holds | | | ,,,,, |

| | | | | | $\alpha = 4.0$ | 0° ; $C_{L} = 0.396$ | | | | | |
|-------|---------|------|-------|-------|----------------|-------------------------------|------|-------|-------|------|--------|
| STA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| X/C | CF | X/C | CP | X/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | UPPER S | HEACE | | | | | |
| 660 | 396 | 021 | 799 | .023 | -1.072 | .025 | 855 | .022 | 804 | .018 | 708 |
| 567 | 256 | .035 | 653 | .068 | 702 | .079 | 630 | .075 | 586 | .077 | 630 |
| 452 | 332 | .105 | 556 | .134 | 526 | .133 | 514 | .129 | 450 | .129 | 378 |
| 311 | 347 | .178 | 486 | .209 | 449 | .214 | 396 | .201 | 359 | .209 | 283 |
| 023 | 297 | .286 | 393 | .294 | 382 | .295 | 338 | .294 | 311 | .293 | 249 |
| .133 | 237 | .396 | 331 | .404 | 317 | .407 | 304 | .397 | 272 | .494 | 204 |
| .272 | 194 | .514 | 258 | -497 | 292 | .502 | 289 | .495 | 263 | .590 | 214 |
| .416 | 162 | .618 | 236 | .559 | 265 | .601 | 270 | .594 | 263 | .693 | 223 |
| .565 | 118 | .733 | 194 | -7CC | 265 | .698 | 286 | .693 | 264 | .777 | 238 |
| .713 | 104 | .835 | 163 | .864 | 220 | .863 | 256 | .784 | 272 | .861 | 209 |
| .854 | 115 | .919 | 119 | .926 | 162 | .923 | 188 | .856 | 263 | .918 | 182 |
| .980 | 106 | .987 | 041 | .975 | 065 | .977 | 064 | .926 | 191 | .972 | 073 |
| 1.074 | 085 | | | | | | | .977 | 053 | | |
| 1.122 | 048 | | | | | | | | | | |
| | | | | | LOWER S | URFACE | | | | | |
| 660 | .093 | 022 | .339 | .024 | .320 | .025 | .283 | .019 | . 306 | .020 | . 279 |
| 616 | .072 | .038 | . 145 | .075 | .107 | .130 | .030 | .066 | .055 | .076 | .009 |
| 572 | .054 | .101 | .042 | .297 | 043 | .298 | 019 | .136 | 004 | .136 | 42.057 |
| 462 | .019 | .165 | .000 | -400 | 033 | .397 | 032 | .214 | 007 | .221 | - 366 |
| 329 | .006 | .398 | 025 | .604 | 047 | .501 | 037 | .292 | 025 | .295 | 061 |
| 172 | 001 | .137 | .112 | .785 | .164 | .603 | .025 | .403 | 032 | .396 | 044 |
| 030 | 056 | | | .567 | .161 | . 703 | .075 | .489 | 045 | .497 | 048 |
| .128 | 084 | | | 1.000 | 004 | .784 | .153 | .594 | 045 | .597 | 020 |
| .418 | 018 | | | | | .868 | .231 | .700 | .081 | .702 | .079 |
| .564 | .026 | | | | | .923 | .270 | . 786 | .171 | .786 | .154 |
| .710 | .111 | | | | | .972 | .166 | .858 | .247 | .864 | .217 |
| .976 | .238 | | | | | | | .919 | . 256 | .912 | .222 |
| 1.072 | .196 | | | | | | | .967 | -140 | | |
| 1.110 | .144 | | | | | | | | | | |
| CN= | 4 3 9 9 | | 4148 | | 4151 | | 208 | | 3786 | | 1056 |
| | 0271 | | 0391 | | 0577 | 0 | 752 | | 0744 | 0 | 0663 |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.5 o - Continued. M = 0.50

| | | | | | | α = 8 | .00°; C _L = 0.73 | 0 | | | | |
|------|------------|------------|------------|------------|------------|------------|-----------------------------|------------|------------|------------|------------|------------|
| | STA x/C | .133 CF | STA X/C | .307 CP | STA X/C | .460 CP | STA X/C | .653 CP | STA X/C | .804 CP | STA X/C | .933 CP |
| | | | | | | UPPER | SURFACE | | | | | |
| | .660 | 263 | 021 | -2.287 | .023 | -2.607 | .025 | -2.205 | .022 | -1.602 | .018 | -1.445 |
| | .567 | 426 | .035 | -1.244 | .068 | -1.362 | . 679 | -1.221 | .075 | -1.398 | .077 | 990 |
| | .452 | 477 | .105 | 690 | .134 | -1.094 | .133 | 866 | .129 | -1.145 | .129 | 841 |
| | .311 | 485 | .178 | 746 | .209 | 693 | .214 | 650 | .201 | 727 | .209 | 672 |
| | .023 | 394 | .286 | 587 | .294 | 556 | .295 | 529 | . 294 | 647 | .293 | 477 |
| | .133 | 319 | .396 | 466 | .404 | 448 | .407 | 434 | .397 | 427 | .494 | 309 |
| | .212 | 276 | .514 | 364 | .497 | 393 | .502 | 377 | .495 | 364 | .590 | 262 |
| | .416 | 218 | .618 | 296 | .599 | 336 | .601 | 338 | .594 | 314 | .693 | 239 |
| | .565 | 186 | .733 | 232 | .700 | 291 | .698 | 312 | .693 | 281 | .777 | 214 |
| | .713 | 161 | .835 | 165 | .864 | 194 | .863 | 210 | .784 | 262 | .861 | 175 |
| | .854 | 170 | .919 | 107 | .926 | 124 | .923 | 150 | .856 | 230 | .918 | 158 |
| | .980 | 144 | .587 | 056 | .975 | 065 | .977 | 067 | .926 | 153 | .972 | 088 |
| 1 | .074 | 115 | | | | | | | .977 | 067 | | |
| 1 | .122 | 068 | | | | | | | | | | |
| | | | | | | LOWER | SURFACE | | | | | |
| - | .660 | .085 | 022 | . 345 | .024 | .531 | .025 | .534 | .019 | .520 | .020 | .503 |
| - | .616 | .152 | .038 | .337 | .075 | .367 | .130 | .269 | .066 | .329 | .076 | .279 |
| | .572 | .156 | .101 | . 259 | .297 | .126 | . 298 | .125 | .136 | .225 | .136 | .168 |
| - | .462 | .130 | .165 | . 180 | . 400 | .083 | .397 | .085 | .214 | -161 | .221 | .088 |
| - | .329 | .110 | . 398 | .090 | .604 | .015 | .501 | .058 | .292 | -112 | .295 | .059 |
| - | .172 | .093 | .737 | . 155 | .785 | .191 | .603 | .094 | .403 | .079 | .396 | .029 |
| - | .030 | .043 | | | .967 | .153 | .703 | .116 | .489 | .038 | .497 | -006 |
| | .128 | .010 | | | 1.000 | 046 | .764 | .173 | .594 | .023 | .597 | .012 |
| | .418 | .073 | | | | | .868 | .258 | .700 | .104 | .702 | .079 |
| | .564 | .104 | | | | | .923 | .287 | .786 | -188 | .786 | .142 |
| | .710 | .165 | | | | | .972 | .166 | .858 | .250 | .864 | -197 |
| | .976 | .283 | | | | | | | .919 | . 260 | .912 | .197 |
| 1 | .072 | .233 | | | | | | | .967 | -121 | | |
| 1 | .110 | .163 | | | | | | | | | | |
| CN= | | 7492 | | 1432 | | 7350 | | 7190 | | .6925 | | 5634 |
| C M= | | 0859 | •• | 0242 | | 0376 | • | .0584 | •• | .0572 | • | 0478 |

| | | | | | α = | 11.07°; C _L = 0.9 | 52 | | | | |
|-------|-------|-------------|---------|------------|--------|------------------------------|------------|------------|------------|------------|------------|
| STA | .155 | \$1A X/C | 301 | STA A/C | .48C | STA X/C | .653 CP | STA X/C | .804 CP | STA X/C | .933 CP |
| | | ~, ~ | | */- | · · | */* | C. | *,, | Cr. | A/C | CF |
| | | | | | LPPER | SLRFACE | | | | | |
| (60 | 453 | 021 | - 6.537 | . J23 | -1.025 | .025 | -2.363 | .022 | 992 | .018 | 509 |
| 567 | 573 | .035 | -2.425 | .668 | -1.494 | .079 | -2.075 | .075 | -1.038 | .077 | 503 |
| 402 | 020 | .105 | -1.636 | .134 | 945 | .133 | -1.015 | .129 | 970 | .129 | 471 |
| 311 | 507 | .178 | 751 | .269 | 932 | .214 | 428 | .201 | -1.020 | .209 | 456 |
| 023 | 4/4 | .206 | 639 | .294 | E5C | . 295 | 384 | .294 | 999 | .293 | 425 |
| .133 | 593 | .356 | 518 | .404 | 812 | .467 | 328 | .397 | -1.CO4 | .494 | 365 |
| .212 | 344 | .514 | 357 | .497 | 704 | .502 | 288 | .495 | 970 | .590 | 338 |
| .416 | 241 | .618 | 304 | .599 | 694 | .601 | 311 | . 594 | 842 | .693 | 327 |
| .565 | 200 | .733 | 225 | .100 | 637 | 640. | 253 | .693 | 746 | .777 | 306 |
| .713 | 256 | .035 | 158 | . 364 | 400 | . 863 | 258 | . 784 | 598 | .861 | 284 |
| .054 | 417 | .519 | 166 | .926 | 191 | .923 | 201 | .856 | 375 | .918 | 284 |
| .500 | 142 | . 447 | 670 | .575 | 156 | .977 | 233 | .926 | 330 | .972 | 279 |
| 1.074 | 151 | | | | | | | .977 | 177 | | |
| 1.122 | 000 | | | | | | | | | | |
| | | | | | LCHEF | SURFACE | | | | | |
| 660 | .044 | 622 | . 193 | .024 | .56€ | .025 | .528 | .019 | .498 | .020 | .512 |
| 615 | .104 | .630 | . 446 | .075 | .455 | .130 | .3C6 | .066 | . 389 | .076 | . 352 |
| 572 | .214 | .101 | . 302 | . 297 | .106 | .258 | .158 | .136 | .284 | .136 | .234 |
| 462 | | .105 | . 300 | .400 | .139 | .357 | .104 | .214 | .203 | .221 | -139 |
| 327 | .115 | . 358 | . 168 | .604 | .035 | .561 | .060 | .292 | .156 | .295 | .091 |
| 112 | .100 | .131 | . 134 | .765 | .165 | .633 | .073 | .403 | .108 | .396 | .055 |
| 030 | .115 | | | .567 | .000 | .763 | .065 | .489 | .056 | .497 | .011 |
| .120 | .069 | | | 1.000 | 467 | . 784 | .116 | .594 | .040 | .597 | .010 |
| .410 | .140 | | | | | .868 | .215 | .700 | .100 | . 702 | .071 |
| .564 | .102 | | | | | .923 | .247 | .786 | .173 | .786 | .125 |
| .710 | . 641 | | | | | .972 | .058 | .858 | .236 | .864 | .178 |
| .510 | .325 | | | | | | | .919 | .231 | .912 | -180 |
| 1.672 | . 655 | | | | | | | .967 | .062 | | |
| 1.110 | .193 | | | | | | | | | | |
| | CITS | | 5614 | | 9111 | | 1216 | | 9122 | | 5131 |
| (M= . | 1265 | •• | CC 18 | •• | 1120 | - | G379 | ** | 1574 | 0 | 0915 |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.50 - Continued.

M = 0.80

| | | | | | \alpha = - | -3.98° ; $C_{L} = -0.$ | 372 | | | | |
|-------|-------|-------|-------------|-------------|------------|---------------------------------|------------|------------|------------|-------|------------|
| STA | .133 | STA | . 307 CF | \$1A X/C | .480 CP | STA X/C | .653 CP | STA X/C | .804 CP | STA | .933 CP |
| *** | CF | */- | CF | */(| CP | */ | CP | X/C | CP | X/C | CP |
| | | | | | UPPER | SURFACE | | | | | |
| 660 | .028 | 021 | .310 | .023 | .339 | .025 | .326 | .022 | .420 | .018 | .460 |
| 567 | 002 | .035 | .135 | .068 | .182 | .079 | .190 | .075 | .209 | .077 | .129 |
| 452 | 091 | .105 | . 067 | .134 | .089 | .133 | .122 | .129 | -142 | .129 | .132 |
| 311 | 139 | .170 | 012 | .209 | .039 | .214 | .C76 | .201 | . 091 | .209 | . 068 |
| 023 | 113 | .286 | C31 | .294 | .010 | . 295 | .029 | .294 | .052 | .293 | .012 |
| .133 | 049 | .396 | 043 | .404 | 019 | .407 | 012 | . 397 | .011 | .494 | 080 |
| .272 | 015 | .514 | 041 | . 497 | 045 | .502 | 042 | .495 | 038 | .590 | 126 |
| .416 | .004 | .618 | 062 | .599 | 074 | .601 | 086 | . 594 | 078 | .693 | 185 |
| .565 | .031 | .733 | 079 | .700 | 116 | .698 | 142 | .693 | 142 | .777 | 243 |
| .713 | .024 | .835 | 097 | .864 | 169 | .863 | 214 | .784 | 188 | .861 | 243 |
| .854 | 008 | .919 | 091 | .926 | 133 | .923 | 187 | .856 | ₽.213 | .918 | 257 |
| .980 | 028 | .987 | 024 | . 575 | 047 | .977 | 051 | .926 | 177 | .972 | 151 |
| 1.074 | 049 | | | | | | | .977 | 045 | | |
| 1.122 | 023 | | | | | | | * | | | |
| | | | | | LOWER | SURFACE | | | | | |
| 660 | 049 | 022 | 689 | .024 | -1.448 | .025 | -1.540 | .019 | 801 | .020 | 614 |
| 616 | 150 | .038 | 798 | .075 | -1.286 | .130 | -1.340 | .066 | 804 | .076 | 440 |
| 572 | 208 | -101 | 664 | .297 | 404 | .298 | 333 | .136 | 768 | .136 | 461 |
| 462 | 202 | .185 | 582 | -400 | 341 | . 39 7 | 286 | .214 | 747 | .221 | 341 |
| 329 | 189 | . 398 | 332 | .604 | 207 | .501 | 197 | .292 | 715 | .295 | 323 |
| 172 | 156 | .737 | .021 | .785 | .087 | .603 | 041 | . 403 | 589 | .396 | 291 |
| 030 | 253 | | | .967 | .169 | .703 | .044 | .489 | 562 | .497 | 251 |
| .128 | 341 | | | 1.000 | . 047 | .784 | .057 | .594 | 461 | .597 | 227 |
| .418 | 289 | | | | | .868 | -101 | .700 | 298 | .702 | 178 |
| .564 | 191 | | | | | .923 | .125 | .786 | 171 | .786 | 149 |
| .710 | 034 | | | | | .972 | -116 | .858 | 056 | . 864 | 139 |
| .976 | .200 | | | | | | | .919 | .032 | .912 | 162 |
| 1.072 | .200 | | | | | | | .967 | .052 | | |
| 1.110 | .165 | | | | | | | | | | |
| | .1815 | | 3125 | | 3432 | | 3461 | | 4513 | | 2205 |
| CM= - | .0763 | | 506 | | 0782 | | 0959 | | 0082 | | 236 |
| | | | | | 2 | | | | | | |

| 660 | 004 | | .307 CP | STA X/C | .480 CP | STA | .653 | STA | . 804 | STA | |
|-----------|-------|-------|------------|------------|------------|--------|------|-------|-------|------|------|
| 660 . | 004 | | CF | X/C | | | | | | | .933 |
| | 096 . | 021 - | | | CP | x/C | CP | X/C | CP | X/C | CP |
| | 096 . | 021 - | | | UPPER S | URFACE | | | | | |
| | . 096 | | C10 | .023 | 214 | .025 | 097 | .022 | -080 | .018 | -210 |
| 567 | | 035 - | 228 | .068 | 232 | .079 | 154 | .075 | 104 | .077 | 202 |
| 452 | 210 . | 105 - | 240 | .134 | 219 | .133 | 183 | .129 | 111 | .129 | 090 |
| 311 | 268 . | 178 - | 264 | . 209 | 215 | .214 | 168 | .201 | 130 | -209 | 099 |
| 023 | 224 . | 286 - | 256 | .294 | 200 | .295 | 175 | . 294 | 122 | .293 | 111 |
| .133 | 155 . | 396 - | 214 | .404 | 195 | .407 | 165 | .397 | 140 | .494 | 141 |
| .272 | 128 . | 514 - | 176 | .497 | 197 | .502 | 182 | .495 | 172 | .590 | 163 |
| .416 | .092 | 618 - | 175 | .599 | 199 | .601 | 207 | .594 | 194 | .693 | 190 |
| .565 | 059 | 733 - | 163 | .700 | 223 | -698 | 242 | .693 | 230 | .777 | 211 |
| | .053 | 835 . | 161 | .864 | 228 | .863 | 249 | .784 | 252 | .861 | 183 |
| .854 | 078 . | 919 - | 121 | .926 | 163 | .923 | 180 | .856 | 263 | .918 | 163 |
| .980 | . 084 | 987 - | 033 | .975 | 066 | .977 | 032 | .926 | 190 | .972 | 028 |
| 1.074 | 074 | | | | | | | .977 | 028 | | |
| 1.122 | 031 | | | | | | | | | | |
| | | | | | LOWER S | URFACE | | | | | |
| | | | 018 | .024 | 284 | .025 | 404 | .019 | 643 | .020 | 576 |
| | | | 219 | .075 | 355 | -130 | 349 | .066 | 563 | .076 | 600 |
| | | | 260 | .297 | 259 | . 298 | 232 | .136 | 414 | .136 | 526 |
| | | | 246 | .400 | 208 | .397 | 222 | .214 | 285 | .221 | 270 |
| | | 398 - | 188 | .604 | 131 | .501 | 179 | .292 | 241 | .295 | 218 |
| | | 137 | .085 | .785 | .138 | .603 | 051 | .403 | 200 | .396 | 163 |
| | 169 | | | .967 | .187 | .703 | .059 | .489 | 192 | .497 | 129 |
| | 223 | | | 1.000 | .019 | .764 | .129 | .594 | 150 | .597 | 052 |
| | 147 | | | | | .868 | .178 | .700 | .031 | .702 | .085 |
| | 180 | | | | | .923 | .201 | . 786 | -140 | .786 | -159 |
| | 044 | | | | | .972 | .153 | .858 | .202 | .864 | .204 |
| | 219 | | | | | | | .919 | .228 | .912 | .203 |
| | 209 | | | | | | | .967 | .159 | | |
| 1.110 . | 157 | | | | | | | | | | |
| CN= .1452 | | .09 | | | 0873 | | 738 | | 146 | | 057 |
| CM=0333 | | 05 | 34 | 0 | 707 | 0 | 000 | 0 | 858 | 0 | 851 |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h - -2.5° - Continued. M = 0.80

| | | 100 | | | | a = 4.02 | o; C _L = 0.42 | 7 | | | | |
|-----|-------|------|-------|-------|-------|-----------|--------------------------|--------|------|-------|------|------|
| | STA | .133 | STA | . 307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| 1 | x/C | CP | X/C | CP | x/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | | UPPER SUI | REACE | | | | , | |
| | .660 | 061 | 021 | 714 | .023 | -1.257 | .025 | -1.167 | .022 | 879 | .018 | 707 |
| | .567 | 215 | .035 | 812 | .068 | -1.283 | .079 | 828 | .075 | 773 | .011 | 795 |
| | .452 | 338 | .105 | 631 | .134 | 601 | .133 | 567 | .129 | 520 | .129 | 458 |
| | .311 | 389 | .178 | 553 | .209 | 478 | .214 | 444 | .201 | 429 | .209 | 351 |
| - | .023 | 335 | .286 | 463 | .294 | 413 | .295 | 378 | .294 | 352 | .293 | 290 |
| | .133 | 245 | . 396 | 391 | .404 | 353 | .407 | 333 | .397 | 312 | .494 | 235 |
| | .272 | 232 | .514 | 302 | .497 | 326 | .502 | 323 | .495 | 312 | .590 | 231 |
| | .416 | 198 | .618 | 212 | .599 | 292 | .601 | 322 | .594 | 312 | .693 | 243 |
| | .565 | 155 | .733 | 222 | .700 | 291 | .698 | 330 | .693 | 315 | .777 | 257 |
| | .713 | 131 | .835 | 180 | .864 | 235 | .863 | 277 | .784 | 310 | .861 | 224 |
| | .854 | 137 | .919 | 111 | .926 | 152 | . 923 | 173 | .856 | 283 | .918 | 182 |
| | .980 | 135 | .987 | 031 | .975 | 065 | .977 | 047 | .926 | 176 | .972 | 046 |
| 1. | .074 | 112 | | | | | | | .977 | 039 | | |
| 1. | .122 | 054 | | | | | | | | | | |
| | | | | | | LOWER SU | RFACE | | | | | |
| | .660 | .096 | .022 | . 342 | .024 | -306 | .025 | .275 | .019 | -250 | .020 | -242 |
| | .616 | .065 | .038 | . 145 | .075 | .074 | .130 | .002 | .066 | .039 | .076 | 028 |
| | .572 | .045 | .101 | - 042 | .297 | 037 | . 298 | 048 | -136 | 038 | .136 | 090 |
| | .462 | .001 | .165 | 012 | .400 | 054 | .397 | 063 | .214 | 047 | .221 | 109 |
| | .329 | 012 | .398 | 046 | .604 | 057 | .501 | 065 | .292 | 046 | .295 | 103 |
| | .172 | 009 | .737 | -125 | .785 | -169 | .603 | .008 | -403 | 052 | .396 | 074 |
| | .030 | 066 | | | .967 | .185 | . 703 | .070 | .489 | 078 | .497 | 076 |
| | .128 | 121 | | | 1.000 | 017 | .784 | -157 | .594 | 071 | .597 | 024 |
| | .413 | 034 | | | | | .868 | .239 | .700 | .074 | .702 | .090 |
| | . 564 | .021 | | | | | .923 | .290 | .786 | . 182 | .786 | .172 |
| | .710 | .125 | | | | | .972 | .188 | .858 | .254 | .864 | .231 |
| | .976 | .271 | | | | | | | .919 | .273 | .912 | .227 |
| | .072 | .228 | | | | | | | .967 | .150 | | , |
| 1. | -110 | -174 | | | | | | | | | | |
| CN= | | 1732 | | 4591 | | 4752 | | 4635 | | 4114 | | 3394 |
| CP= | .(| 0060 | 1 | 0435 | | 0562 | | 9758 | | 0787 | | 0690 |

| | | | | | $\alpha = 8.14^{\circ}$ | ; C _L = 0.792 | | | | | |
|-------|-------|------|--------|-------|-------------------------|--------------------------|--------|-------|-------|------|------|
| STA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| X/C | CP | */C | CF | X/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | | | | | | | |
| 660 | 211 | 021 | -1-696 | .023 | UPPER SUR | .025 | -1-474 | .022 | 963 | -016 | 627 |
| 567 | | 035 | -1.744 | .068 | -1.050 | .079 | -1.474 | .075 | 953 | .077 | 609 |
| 452 | | -105 | -1.288 | .134 | 990 | .133 | -1.151 | .129 | 927 | .129 | 571 |
| 311 | | -178 | -1.350 | -209 | 792 | .214 | 588 | .201 | 890 | .209 | 520 |
| 023 | | .286 | 858 | .294 | 671 | .295 | 467 | .294 | 853 | .293 | 506 |
| .133 | | .396 | 444 | .404 | 870 | .407 | 396 | .397 | 786 | .494 | 395 |
| .272 | | -514 | 330 | -497 | 753 | .502 | 353 | .495 | 693 | .590 | 356 |
| .416 | | .618 | 305 | .599 | 689 | .601 | 320 | .594 | 586 | .693 | 306 |
| .565 | | .733 | 225 | .700 | 592 | .658 | 293 | .693 | 485 | .777 | 276 |
| .713 | | .835 | 160 | .864 | 408 | .863 | 259 | .784 | 396 | .861 | 231 |
| -854 | | .919 | 088 | .926 | 390 | .923 | 268 | .856 | 340 | .918 | 203 |
| .980 | | .987 | 035 | .975 | 274 | .977 | 242 | .926 | 243 | .972 | 198 |
| 1.074 | | | | | | 7.7.1 | | .977 | 201 | • | |
| 1.122 | | | | | | | | | | | |
| | | | | | LOWER SUR | FACE | | | | | |
| 660 | .116 | 022 | .426 | .024 | .515 | .025 | .482 | .019 | .454 | .020 | .451 |
| 016 | | .038 | . 351 | .015 | .317 | .130 | .180 | .066 | . 257 | .076 | -103 |
| 572 | | .101 | . 256 | .297 | .100 | .298 | .069 | .136 | .139 | .136 | .083 |
| 46 | | .185 | .189 | .400 | .056 | .397 | .017 | .214 | . 089 | .221 | -020 |
| 329 | .102 | .398 | . 098 | .604 | 013 | .501 | 014 | .292 | .054 | .295 | 018 |
| 172 | .107 | .737 | .173 | .785 | .182 | .603 | .025 | .403 | .022 | .396 | 040 |
| 030 | .045 | | | .967 | .064 | .703 | .044 | .489 | 012 | .497 | 075 |
| -128 | .002 | | | 1.000 | 266 | .784 | .116 | . 594 | 030 | .597 | 052 |
| -410 | .073 | | | | | .868 | .220 | .700 | .086 | .702 | .042 |
| .564 | .110 | | | | | .923 | .268 | .786 | .178 | .786 | -107 |
| .710 | | | | | | .972 | .107 | .858 | .244 | .864 | -161 |
| .976 | | | | | | | | .919 | . 251 | .912 | -143 |
| 1.072 | | | | | | | | .967 | .100 | | |
| 1.110 | .192 | | | | | | | | | | |
| CN= | .8409 | | 8669 | | 8443 | | 6505 | | 7580 | | 4626 |
| CH= | -0528 | | 0175 | | 1276 | | 0604 | | 1160 | | 0735 |
| | | | | | | | | | | | |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.5° - Continued.

M = 0.80

| | | | | | α = 1 | 1.22°; C _L = 0.9 | 90 | | | | |
|------------|--------|------------|-------------|------------|--------------|-----------------------------|--------------|------------|--------------|------------|--------------|
| \$1 x/0 | | STA X/C | . 307 CP | STA X/C | .480 CP | STA X/C | .653 CP | STA X/C | .804 CP | STA X/C | .933 CP |
| | | | | | UPPER | SURFACE | | | | | |
| 00 | 0368 | 021 | -1.215 | -023 | -1.381 | .025 | -1.529 | .022 | 979 | .018 | 473 |
| 50 | 7503 | .035 | -1.167 | -C68 | -1.066 | -079 | -1.527 | .075 | 957 | .077 | 460 |
| 45 | 2599 | .105 | -1.183 | .134 | -1.346 | -133 | -1.558 | .129 | 922 | .129 | 466 |
| 31 | | .178 | -1.142 | -209 | -1.273 | .214 | 732 | .201 | 949 | -209 | 434 |
| 02 | 3538 | -286 | -1.140 | .294 | 995 | .295 | 373 | .294 | 940 | .293 | 414 |
| -13 | | .396 | 999 | .404 | -1.039 | .407 | 369 | .397 | 928 | .494 | 383 |
| .27 | | .514 | 926 | .497 | 867 | -502 | 354 | .495 | 950 | .590 | 366 |
| .41 | | .618 | 791 | . 599 | 689 | -6C1 | 326 | .594 | 848 | .693 | 346 |
| .56 | | .733 | 690 | .700 | 577 | -698 | 329 | .693 | 784 | .777 | 353 |
| .71 | | .835 | 546 | .864 | 335 | .863 | 314 | .784 | 679 | .861 | 345 |
| .85 | | .919 | 425 | .926 | 424 | .923 | 307 | .856 | 586 | .916 | 334 |
| .98 | | .987 | 299 | .575 | 338 | .977 | 309 | .926 | 491 | .972 | 329 |
| 1.07 | | | | | | | | .977 | 270 | | |
| 1.12 | 2147 | | | | | | | | | | |
| | | | | | LOWER | SLRFACE | | | | | |
| 66 | 0 -101 | 022 | .423 | -024 | .563 | .025 | .541 | .019 | .515 | .020 | .494 |
| 61 | 6 .211 | .038 | .462 | .075 | .412 | .130 | .266 | .066 | .353 | .076 | .271 |
| 57 | | .101 | . 374 | .297 | .152 | .298 | -113 | .136 | .228 | .136 | -144 |
| 46 | 2 .218 | .185 | . 278 | -400 | -102 | .357 | . 058 | -214 | .153 | .221 | . 059 |
| 32 | 9 .195 | .398 | .159 | -604 | 030 | .501 | .005 | .292 | -112 | .295 | .015 |
| | 2 .174 | .737 | .170 | .785 | .121 | .603 | .046 | . 403 | .071 | .396 | 041 |
| 03 | 0 .141 | | | .967 | 009 | .703 | -046 | .489 | . 009 | .497 | 083 |
| -12 | 8 .091 | | | 1.000 | 393 | .784 | -116 | .594 | 022 | .597 | 088 |
| .41 | 8 .150 | | | | | .868 | .231 | .700 | .064 | .702 | 002 |
| .56 | 4 .177 | | | | | .923 | .275 | .786 | .138 | .786 | -064 |
| .71 | 0 .249 | | | | | .972 | .090 | .858 | .200 | .864 | -115 |
| .97 | 6 .345 | | | | | | | .919 | -191 | .912 | -118 |
| 1.07 | 2 .274 | | | | | | | .967 | 025 | | |
| 1.11 | 0 .183 | | | | | | | | | | |
| CM= | 1.1329 | | 1112 | | 9681 1080 | | 7313 C647 | | 9392 1688 | | 4493 0849 |

M = 0.90

| | | | | | | α = - | 3.82°; C _L = -0. | 389 | | | | |
|-----|-------|------------|------------|-------|------------|------------|-----------------------------|------------|------|------|------|------|
| | STA | •133 CP | STA X/C | .307 | STA X/C | .480 CP | STA X/C | .653 CP | STA | .804 | STA | .933 |
| | ~, ~ | C. | *** | | */" | CF | A/C | CP | X/C | CP | X/C | CP |
| | | | | | | UPPER | SURFACE | | | | | |
| | 660 | .022 | 021 | . 295 | .023 | .267 | .025 | .308 | .022 | -402 | -018 | .433 |
| | 567 | 010 | .035 | .116 | .068 | .149 | .079 | -162 | .075 | .189 | .077 | .093 |
| | 452 | 112 | -105 | . 043 | .134 | . €5€ | .133 | -101 | -129 | .138 | -129 | .113 |
| | 311 | 178 | .178 | 014 | .209 | .025 | .214 | .059 | .201 | .084 | .209 | .060 |
| | 023 | 132 | .286 | C43 | .294 | 004 | . 295 | .021 | -294 | .042 | .293 | 015 |
| | .133 | 058 | .396 | 058 | .404 | 038 | .467 | 019 | .397 | 001 | .494 | 121 |
| | .272 | 021 | .514 | C41 | .497 | 064 | .502 | 056 | .495 | 054 | .590 | 190 |
| | .416 | .006 | .618 | 074 | .599 | 093 | .601 | 100 | .594 | 110 | .693 | 272 |
| | .565 | 045 | .733 | 083 | .700 | 138 | .698 | 166 | .693 | 180 | .777 | 361 |
| | .713 | .032 | .835 | 111 | .864 | 158 | . 863 | 249 | .784 | 236 | .861 | 309 |
| | .854 | 613 | .919 | 099 | .926 | 156 | .923 | 209 | .856 | 244 | .918 | 332 |
| | .980 | 044 | .987 | 011 | .975 | 059 | .977 | 069 | .926 | 210 | .972 | 217 |
| | 1.074 | 058 | | | | | | | .977 | 136 | | |
| | 1.122 | 026 | | | | | | | | | | |
| | | | | | | LOWER | SURFACE | | | | | |
| | 660 | 056 | 022 | 623 | .024 | -1.062 | .025 | -1.190 | .019 | 898 | .020 | 483 |
| | 616 | 141 | .038 | 698 | .075 | -1.092 | -130 | -1.200 | .066 | 868 | .076 | 462 |
| | 572 | 177 | -101 | 635 | .297 | 970 | .298 | 668 | .136 | 785 | -136 | 403 |
| | 462 | 206 | .185 | 604 | .400 | 184 | .397 | 261 | .214 | 757 | .221 | 356 |
| | 329 | 194 | . 398 | 565 | -604 | 198 | .501 | 181 | .292 | 741 | .295 | 318 |
| | 172 | 121 | .737 | .005 | .765 | -111 | . 603 | 070 | .403 | 693 | .396 | 296 |
| | 030 | 234 | | | .967 | -176 | .703 | .044 | .489 | 599 | .497 | 249 |
| | .128 | 350 | | | 1.000 | .02€ | . 784 | .044 | .594 | 544 | .597 | 227 |
| | .418 | 343 | | | | | .868 | .093 | .700 | 428 | .702 | 229 |
| | .564 | 310 | | | | | .923 | .102 | .786 | 328 | .786 | 208 |
| | .710 | 083 | | | | | .972 | .078 | .858 | 152 | .864 | 214 |
| | .976 | .198 | | | | | | | .919 | .107 | .912 | 201 |
| | 1.072 | .222 | | | | | | | .967 | .136 | | |
| | 1.110 | .179 | | | | | | | | | | |
| CN= | 1 | 937 | | 1660 | | 3399 | - | 3294 | | 4824 | | 1795 |
| CM= | | 538 | | 345 | | 0772 | | C878 | | 0054 | | 314 |
| | - | | | 0.000 | | | | | | 700 | | 7317 |

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.50 - Continued.

M = 0.90

| | | | | | α = 0 | .02°; C _L = 0.024 | | | | | |
|----------|--------|--------|------------|-------|------------|------------------------------|------------|------------|------------|------------|------------|
| S x/: | 14 .13 | STA | .307 CP | STA | .480 CP | STA X/C | .653 CP | STA X/C | .804 CP | STA X/C | .933 CP |
| | | | | | | | | | | | |
| | | | | 022 | | SURFACE | | | | | |
| 0 | | | | .023 | 169 | .025 | 079 | .022 | .081 | .018 | -190 |
| 5 | | | | .068 | | .079 | 150 | .075 | 122 | .077 | 204 |
| | | | | .134 | 232 | .133 | 171 | .129 | 115 | -129 | 089 |
| 3 | | | | . 209 | 213 | .214 | 167 | .201 | 138 | .209 | 127 |
| 0 | | | | .294 | 216 | .295 | 163 | .294 | 140 | .293 | 149 |
| -1 | | | | -404 | 194 | .407 | 171 | .397 | 146 | .494 | 169 |
| • 5 | | | | .497 | 199 | .502 | 200 | .495 | 185 | .590 | 162 |
| -4 | | | | .599 | 213 | .601 | 217 | .594 | 209 | .693 | 207 |
| .5 | | | | .700 | 239 | .698 | 272 | .693 | 258 | .777 | 213 |
| .1 | | | | .864 | 236 | .863 | 276 | .784 | 285 | .861 | 172 |
| . 6 | | | | .926 | 146 | .923 | 168 | .856 | 282 | .918 | 127 |
| .9 | | | 015 | .975 | 050 | .977 | 024 | .926 | 173 | .972 | -012 |
| 1.0 | | | | | | | | .977 | 010 | | |
| 1.1 | 03 | 0 | | | | | | | | | |
| | | | | | LOWER | SURFACE | | | | | |
| 6 | 60 .03 | 9022 | . 032 | .024 | 264 | .025 | 520 | .019 | 659 | .020 | 633 |
| 6 | 1603 | 9 .036 | 223 | .075 | 425 | .130 | 343 | .066 | 698 | .076 | 699 |
| 5 | 1207 | 4 .101 | 274 | .297 | 285 | . 298 | 297 | .136 | 515 | -136 | 665 |
| 4 | 6211 | 2 .18: | 288 | .400 | 229 | .397 | 256 | -214 | 315 | .221 | 398 |
| 3 | 2911 | 7 .396 | 203 | .604 | 130 | .501 | 195 | .292 | 285 | .295 | 255 |
| 1 | 7207 | 8 .737 | . 086 | .785 | .143 | .603 | 047 | .403 | 223 | .396 | 165 |
| 0 | 3017 | 3 | | .967 | .199 | .703 | .065 | .489 | 223 | .497 | 128 |
| -1 | 2825 | 7 | | 1.000 | .007 | .784 | .116 | .594 | 160 | .597 | 044 |
| .4 | 1617 | 6 | | | | .868 | .174 | .700 | .024 | .702 | -089 |
| .5 | | 0 | | | | .923 | .185 | .786 | . 132 | .786 | -160 |
| .7 | | | | | | .972 | .139 | .858 | -192 | .864 | -199 |
| .9 | | | | | | | | .919 | .214 | .912 | -197 |
| 1.0 | | | | | | | | .967 | .162 | | |
| 1.1 | | | | | | | | | | | |
| CN- | .1383 | | .0651 | | 0172 | | 0561 | | 0057 | | 0125 |
| CM- | 0364 | | 0541 | •• | 0741 | And And | 0831 | •• | 0879 | | 0872 |

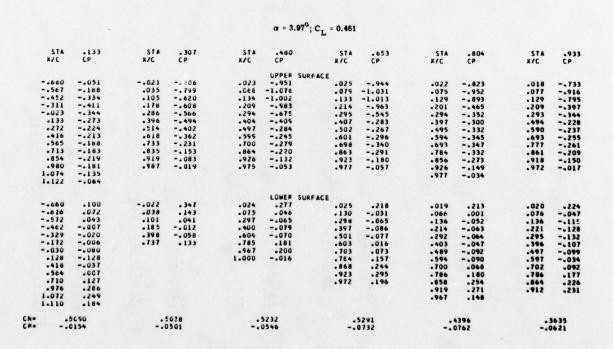


TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; 8_h = -2.5° - Continued. M = 0.90

| | | | | | | $\alpha = 8.17^{\circ}$ | ; C _L = 0.86 | 3 | | | | |
|-----|-------|-------|-------|--------|-------|---|-------------------------|--------|-----------|--------|------|------|
| | SIA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| | X/C | CP | X/C | (P | X/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | | | | | | | | |
| | | 150 | 221 | -1-321 | .023 | UPPER SUR | .025 | -1.294 | .022 | -1.251 | .018 | 665 |
| | 660 | 323 | 021 | -1.440 | .068 | -1.436 | .079 | -1.345 | .075 | -1.327 | .077 | 623 |
| | 452 | 430 | .109 | -1.118 | .134 | -1.365 | .133 | -1.323 | .129 | -1.305 | .129 | 578 |
| | 311 | 520 | .178 | -1.076 | .209 | -1.324 | .214 | -1.184 | .201 | -1.253 | .209 | 556 |
| | 023 | 458 | .286 | -1.048 | .294 | -1.017 | . 295 | 910 | .294 | 821 | .293 | 525 |
| | .133 | 349 | .396 | 920 | .404 | 812 | .407 | 746 | .397 | 727 | .494 | 450 |
| | .272 | 319 | .514 | 732 | .497 | 800 | .502 | 515 | .495 | 672 | .590 | 403 |
| | .416 | 312 | .618 | 575 | .599 | 751 | .601 | 340 | .594 | -,613 | .693 | 363 |
| | .565 | 285 | .733 | 489 | .700 | 682 | .698 | 283 | .693 | 554 | .777 | 337 |
| | .713 | 293 | .635 | 199 | .864 | 461 | .863 | 255 | .784 | 455 | .861 | 308 |
| | .654 | 369 | .919 | 082 | .926 | 415 | . 923 | 261 | .856 | 396 | .918 | 291 |
| | .980 | 431 | .967 | 037 | .975 | 319 | .977 | 262 | .926 | 312 | .972 | 279 |
| | 1.074 | 266 | . 101 | 051 | | | | **** | .977 | 259 | | |
| | 1.122 | 140 | | | | | | | • • • • • | | | |
| | 1.122 | 140 | | | | | | | | | | |
| | | | | | | LOWER SUR | | | | | | |
| | 660 | -141 | 022 | .462 | .024 | .507 | .025 | .450 | .019 | .437 | .020 | .443 |
| | 616 | .170 | .038 | . 354 | .075 | .293 | .130 | .158 | .066 | .209 | .076 | .166 |
| | 572 | .104 | .101 | . 265 | .297 | .096 | .298 | .041 | .136 | .112 | .136 | .064 |
| | 462 | -141 | .185 | -191 | .400 | .045 | . 397 | 013 | .214 | .C63 | .221 | 004 |
| | 329 | .101 | .398 | . 092 | .604 | 029 | . 501 | 047 | .292 | .029 | .295 | 041 |
| | 172 | .104 | .137 | . 180 | .785 | .163 | .603 | .006 | . 403 | 003 | .396 | 076 |
| | 030 | . 033 | | | .967 | .076 | .703 | .015 | .489 | 049 | .497 | 101 |
| | .128 | 002 | | | 1.000 | 382 | .764 | .096 | .594 | 066 | .597 | 081 |
| | .418 | .001 | | | | | . 668 | .212 | .700 | .077 | .702 | .012 |
| | .564 | .118 | | | | | .923 | .266 | .786 | .179 | .786 | .091 |
| | .710 | .215 | | | | | .972 | .096 | .858 | .251 | .864 | .140 |
| | .976 | .33/ | | | | | | | .919 | .254 | .912 | .138 |
| | 1.072 | .213 | | | | | | | .967 | .095 | | |
| | 1.110 | .192 | | | | | | | | | | |
| CN= | | 9065 | | 9782 | | 9787 | | .7661 | | . 8394 | | 4854 |
| CM= | | 0047 | | 0174 | | 1287 | - | .0683 | - | .1153 | | 0848 |
| | | •••• | | - | | 100000000000000000000000000000000000000 | | 100 | | | | |

M = 0.95 $\alpha = -3.97^{\circ}; C_{L} = -0.440$ STA X/C .133 CP .307 CP STA X/C .480 CP .804 CP STA X/C .933 CP UPPER SURFACE ...295 ...132 ...059 ...023 ...007 ...029 ...000 ...005 ...136 ...136 ...138 ...152 ...027 .325 .125 .048 .000 -.019 -.040 -.034 -.065 -.063 -.121 -.098 .289 .151 .100 .044 .032 -.660 -.567 -.452 -.311 -.023 .133 .272 .416 .565 .713 .854 .980 1.074 .025 .079 .133 .214 .295 .407 .502 .601 .698 .863 .923 .022 .075 .129 .201 .294 .397 .495 .693 .784 .856 .926 .394 .203 .139 .082 .050 .014 -.043 -.095 -.171 -.261 -.344 -.515 .450 .199 .129 .056 .001 -.126 -.204 -.302 -.413 -.515 -.646 .018 .077 .129 .209 .293 .494 .590 .693 .777 .861 .002 -.109 -.199 -.113 -.041 -.000 .032 .055 .051 .007 -.038 -.072 .035 .105 .178 .286 .396 .514 .618 .733 .835 .919 .068 .134 .209 .294 .404 .497 .599 .700 .864 .926 -.009 -.056 -.097 -.175 -.252 -.204 -.033 LOWER SURFACE -.889 -.931 -.937 -.894 -.188 .040 .067 -.824 -.701 -.720 -.714 -.660 -.582 -.528 -.422 -.363 -.305 -.284 -.288 -.022 .038 .101 .185 .398 .737 -.528 -.746 -.626 -.521 -.592 -.097 .024 .075 .297 .400 .604 .785 .967 -.660 -.616 0.000 -.329 -.172 -.030 .128 .564 .710 .976 1.072 1.110 -.043 -.132 0.000 -.234 -.101 -.216 -.345 -.289 -.310 -.189 .162 .200 .163 .019 .066 .136 .214 .292 .403 .489 .594 .700 .786 .858 .919 -.405 -.391 -.367 -.368 -.345 -.311 -.281 -.257 -.237 -.232 -.217 .020 .076 .136 .221 .295 .396 .497 .597 .702 .786 .864 -.4113 -.4507 -. 1497

The state of the s

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.5° - Continued. M = 0.95

| | | $\alpha = -0.09^{\circ}; C_{L} = 0.012$ | | | | | | | | | | | | | |
|-----|-------|---|-------|------|-------|---------|---------|-------|------|------|-----------|------|--|--|--|
| | | | | | | | | | | | | .933 | | | |
| | X/C | CP | X/C | CP | x/C | CP | x/C | CP | X/C | CP | X/C | CP | | | |
| | | | | | | UPPER | SURFACE | | | | | | | | |
| | 650 | . 330 | 021 | .018 | .023 | 141 | .025 | 104 | .022 | .094 | .018 | .190 | | | |
| | 507 | 005 | .035 | 189 | .068 | 272 | .079 | 214 | .075 | 106 | .077 | 068 | | | |
| | 452 | 195 | .105 | 229 | .134 | 261 | .133 | 213 | .129 | 125 | .129 | 093 | | | |
| | 311 | 267 | .178 | 273 | .209 | 232 | .214 | 177 | .201 | 131 | .209 | 139 | | | |
| | 023 | 378 | .286 | 235 | . 294 | 207 | .295 | 158 | .294 | 138 | .293 | 156 | | | |
| | .133 | 119 | .396 | 243 | .404 | 184 | .407 | 171 | .397 | 143 | .494 | 222 | | | |
| | .272 | 095 | .514 | 197 | .497 | 234 | .502 | 199 | .495 | 196 | .590 | 289 | | | |
| | .416 | 081 | .618 | 200 | .599 | 227 | .601 | 221 | .594 | 254 | .693 | 354 | | | |
| | .565 | 039 | .733 | 202 | .700 | 266 | .698 | 296 | .693 | 317 | .777 | 111 | | | |
| | .713 | 040 | .835 | 183 | .864 | 268 | .863 | 338 | .784 | 317 | .861 | 137 | | | |
| | .854 | 100 | .919 | 125 | .926 | 155 | .923 | 159 | .856 | 329 | .918 | 106 | | | |
| | .980 | 123 | . 987 | 005 | . 975 | 052 | .977 | 016 | .926 | 205 | .972 | .027 | | | |
| | 1.074 | 104 | | | | | **** | | .977 | 022 | | .021 | | | |
| | 1.122 | 629 | | | | | | | ••• | | | | | | |
| | | | | | | LOWER : | SURFACE | | | | | | | | |
| | 660 | .042 | 022 | .040 | .024 | 289 | .025 | 491 | .019 | 568 | .020 | 573 | | | |
| | 616 | 024 | .038 | 208 | .075 | 451 | 0.000 | 0.000 | .066 | 743 | .076 | 791 | | | |
| | C.000 | 0.000 | .101 | 290 | .297 | 241 | .130 | 549 | .136 | 682 | .136 | 731 | | | |
| | 329 | 121 | .185 | 312 | .400 | 259 | .298 | 237 | .214 | 340 | .221 | 621 | | | |
| | 172 | 071 | .398 | 225 | .604 | 207 | .397 | 235 | .292 | 278 | .295 | 363 | | | |
| | 030 | 192 | .737 | .088 | .785 | .142 | .501 | 287 | .403 | 251 | .396 | 282 | | | |
| | .128 | 314 | | | .967 | .209 | .603 | 029 | .489 | 184 | .497 | 063 | | | |
| | .418 | 190 | | | 1.000 | .016 | .703 | .067 | .594 | 201 | .597 | 002 | | | |
| | .564 | 148 | | | | | .784 | .113 | .700 | .014 | .702 | .102 | | | |
| | .710 | .033 | | | | | .868 | .177 | .786 | .116 | .786 | .164 | | | |
| | .976 | .237 | | | | | .923 | .185 | .858 | .174 | .864 | .204 | | | |
| | 1.072 | .233 | | | | | | | .919 | .212 | .912 | .212 | | | |
| | 1.110 | .184 | | | | | | | .967 | -150 | • • • • • | | | | |
| | 0.000 | 0.000 | | | | | | | | | | | | | |
| CN= | | 1469 | | 0777 | | 0759 | | 0428 | (| 0069 | 0 | 0343 | | | |
| CM= | | 0213 | | 0580 | | 0750 | 0 | 0838 | 0 | 955 | | 0964 | | | |

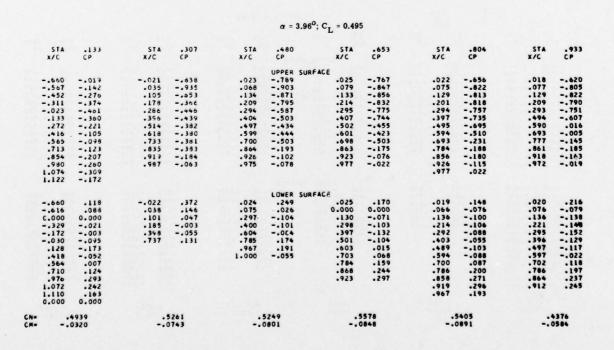


TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h - -2.5° - Continued. M = 0.95

| | | | | | | $\alpha = 8.1$ | $5^{\circ}; C_{L} = 0.90$ | 2 | | | | |
|-----|-------|-------|-------|--------|-------|----------------|---------------------------|--------|-------|--------|-----------|--------------|
| | STA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| | X/C | CP | X/C | CP | X/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | | UPPER SU | DEACE | | | | | |
| | 660 | 115 | 021 | -1.163 | .023 | -1.141 | .025 | -1.101 | 0.2.2 | 1 02/ | 212 | |
| | 567 | 302 | .035 | -1.281 | .068 | -1.227 | .079 | -1.155 | .022 | -1.034 | .018 | 979 |
| | 452 | 380 | .105 | -1.228 | .134 | -1.187 | .133 | -1.145 | .075 | -1.131 | .077 | -1.074 |
| | 311 | 465 | .178 | -1.155 | .209 | -1.150 | .214 | -1.125 | .129 | -1.114 | .129 | 976 |
| | 023 | 529 | .286 | 925 | .294 | -1.110 | .295 | -1.093 | .201 | -1.101 | .209 | 889 |
| | .133 | 411 | .396 | 753 | .404 | -1.046 | .407 | -1.079 | .294 | -1.057 | .293 | 774 |
| | .272 | 345 | .514 | 644 | .497 | 855 | .502 | -1.053 | .397 | -1.028 | .494 | 555 |
| | .416 | 263 | .618 | 520 | .599 | 717 | .601 | 941 | .495 | 972 | .590 | 485 |
| | .565 | 188 | .733 | 455 | .700 | 588 | | 657 | .594 | 691 | .693 | 412 |
| | .713 | 203 | .835 | 462 | .864 | 348 | .698 | 554 | .693 | 500 | .777 | 388 |
| | .854 | 292 | .919 | 325 | .926 | 311 | | 506 | .784 | 401 | .861 | 338 |
| | .980 | 361 | .987 | 161 | .975 | 258 | .923 | | .856 | 373 | .918 | 319 |
| | 1.074 | 440 | . 901 | 101 | .975 | 258 | .977 | 404 | .926 | 353 | .972 | 305 |
| | 1.122 | 359 | | | | | | | .977 | 344 | | |
| | | | | | | | | | | | | |
| | | | | | | LOWER SU | RFACE | | | | | |
| | 660 | .163 | 022 | .474 | .024 | .501 | .025 | .431 | .019 | .387 | .020 | . 382 |
| | 616 | .183 | .038 | .369 | .075 | .279 | 0.000 | 0.000 | .066 | .168 | .076 | .101 |
| | 0.000 | 0.000 | .101 | .261 | .297 | .082 | .130 | -125 | .136 | .072 | .136 | .002 |
| | 329 | .108 | .185 | .193 | .400 | .033 | .298 | .018 | .214 | .029 | .221 | 058 |
| | 172 | .108 | . 398 | .096 | .604 | 039 | .397 | 037 | .292 | 008 | . 295 | 111 |
| | 030 | .035 | .737 | .174 | . 785 | .154 | .501 | 071 | .403 | 016 | .396 | 153 |
| | .128 | 005 | | | .967 | .100 | .603 | .006 | .489 | 082 | .497 | 186 |
| | .418 | .081 | | | 1.000 | 295 | .703 | .025 | .594 | 136 | .597 | 160 |
| | .564 | .120 | | | | | .784 | .112 | .700 | .017 | .702 | 039 |
| | .710 | .217 | | | | | .868 | .234 | .786 | .117 | .786 | .050 |
| | .976 | .344 | | | | | .923 | .289 | .858 | .196 | .864 | .101 |
| | 1.072 | .269 | | | | | | | .919 | .208 | .912 | .098 |
| | 1.110 | .168 | | | | | | | .967 | .024 | • * * * * | .0,0 |
| | 0.000 | 0.000 | | | | | | | .,,, | .024 | | |
| CN= | | 8513 | | 9747 | 70 | 9257 | | 9816 | | 8335 | | |
| CM= | | 0259 | | 1008 | | 1197 | | 1700 | | 1217 | | 5909 0758 |
| | | | | | | | | 1.00 | | 1211 | | 0758 |

M = 0.99

| | | | | | $\alpha = -3.9$ | 6°; C _L = -0.4 | 159 | | | | |
|-------|-------|-------|------|--------|-----------------|---------------------------|-------|------|--------|-------|-------|
| STA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| X/C | CP | X/C | CP | X/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | UPPER SUF | REACE | | | | | |
| 660 | 044 | 021 | .330 | .023 | .291 | .025 | .273 | .022 | .365 | .018 | .430 |
| 567 | 048 | .035 | .158 | .068 | .151 | .079 | .129 | .075 | .178 | .077 | .189 |
| 452 | 111 | .105 | .078 | .134 | .077 | .133 | .099 | .129 | .117 | .129 | .121 |
| 311 | 172 | .178 | .028 | .209 | .040 | .214 | .044 | .201 | .062 | .209 | . 063 |
| 023 | 200 | .286 | 004 | .294 | .009 | .295 | .035 | .294 | .032 | .293 | . 006 |
| .133 | .002 | . 396 | 023 | .404 | 022 | .407 | 010 | .397 | .000 | .494 | 113 |
| .272 | .032 | .514 | 013 | .497 | 060 | .502 | 055 | .495 | 069 | .590 | 189 |
| .416 | .057 | .618 | 043 | .599 | 091 | .601 | 093 | .594 | 134 | .693 | 290 |
| .565 | .088 | .733 | 084 | .700 | 146 | .698 | 176 | .693 | 183 | .777 | 389 |
| .713 | .073 | . 835 | 145 | .864 | 194 | .863 | 402 | .784 | 213 | .861 | 486 |
| .854 | .025 | .919 | 096 | .926 | 150 | .923 | 152 | .856 | 342 | .918 | 637 |
| .980 | 025 | .987 | .016 | .975 | 030 | .977 | 034 | .926 | 442 | .972 | 433 |
| 1.074 | 088 | | | | | | | .977 | 457 | | |
| 1.122 | 040 | | | | | | | | | | |
| | | | | | LOWER SUF | RFACE | | | | | |
| 660 | 100 | 022 | 438 | .024 | 789 | .025 | 867 | .019 | 929 | .020 | 688 |
| 616 | 137 | .038 | 594 | .075 | 833 | 0.000 | 0.000 | .066 | -1.054 | .076 | 644 |
| 0.000 | 0.000 | .101 | 587 | . 297. | 826 | .130 | 992 | .136 | 997 | .136 | 615 |
| 329 | 223 | .185 | 514 | .400 | 851 | .298 | 959 | .214 | 981 | .221 | 541 |
| 172 | 063 | . 398 | 516 | .604 | 197 | .397 | 921 | .292 | 934 | .295 | 531 |
| 030 | | .737 | 097 | .785 | .017 | .501 | 627 | .403 | 709 | .396 | 442 |
| .128 | | | | .967 | .084 | .603 | 170 | .489 | 653 | . 497 | 409 |
| .418 | 238 | | | 1.000 | .021 | .703 | .083 | .594 | 638 | .597 | 377 |
| .564 | 293 | | | | | .784 | .197 | .700 | 529 | .702 | 381 |
| .710 | | | | | | .868 | .189 | .786 | 286 | .786 | 376 |
| .976 | .174 | | | | | .923 | .084 | .858 | 107 | .864 | 340 |
| 1.072 | .218 | | | | | | | .919 | 085 | .912 | 331 |
| 1.110 | | | | | | | | .967 | 041 | | |
| 0.000 | 0.000 | | | | | | | | | | |
| | .1620 | | 3911 | | 4051 | | 4054 | | 5415 | | 3100 |
| M= | .0019 | | 0125 | | 0359 | | 0673 | | 0139 | | 0271 |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h = -2.5° - Continued. M = 0.99

| | | | | | | $\alpha = -0.05$ | 5°; C _L = -0.0 | 04 | | | | |
|-----|-----|-------|------|------|-------|------------------|---------------------------|-------|------|------|-------|-------|
| | STA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | .933 |
| | 10 | CP | X/C | CP | x/C | CP | X/C | CP | X/C | CP | X/C | CP |
| | | | | | | UPPER SUF | FACE | | | | | |
| | 660 | 005 | 021 | 061 | .023 | 205 | .025 | 081 | .022 | .097 | .018 | . 225 |
| | 507 | 079 | .035 | 293 | .068 | 248 | .079 | 175 | .075 | 097 | .077 | 037 |
| | 452 | 157 | .105 | 258 | .134 | 240 | .133 | 186 | .129 | 106 | .129 | 056 |
| | 311 | 245 | .178 | 307 | .209 | 264 | .214 | 191 | .201 | 130 | . 209 | 096 |
| | 023 | 332 | .286 | 216 | .294 | 237 | .295 | 170 | .294 | 098 | .293 | 128 |
| | 133 | 247 | .396 | 201 | .404 | 188 | .407 | 175 | .397 | 074 | .494 | 221 |
| | 272 | 183 | .514 | 183 | .497 | 204 | .502 | 224 | .495 | 125 | .590 | 286 |
| | 416 | 113 | .618 | 199 | .599 | 249 | .601 | 263 | .594 | 196 | . 593 | 373 |
| | 565 | 028 | .733 | 197 | .700 | 288 | .698 | 156 | .693 | 282 | .777 | 471 |
| | 713 | 018 | .835 | 240 | .864 | 163 | .863 | 322 | .784 | 367 | . 861 | 333 |
| | 854 | 071 | .919 | 111 | .926 | 086 | .923 | 166 | .856 | 494 | .918 | 076 |
| | 980 | 118 | .987 | .032 | .975 | 012 | .977 | .001 | .926 | 186 | .972 | 011 |
| | 074 | 142 | | 1000 | | | | | .977 | 050 | | |
| | 122 | 042 | | | | | | | | | | |
| | | | | | | LCWER SUF | RFACE | | | | | |
| | 660 | .040 | 022 | .040 | .024 | 261 | .025 | 430 | .019 | 526 | .020 | 539 |
| | 616 | 029 | .039 | 233 | .075 | 427 | 0.000 | 0.000 | .066 | 731 | .076 | 691 |
| | 000 | 0.000 | .101 | 292 | .297 | 473 | .130 | 674 | .136 | 662 | .136 | 706 |
| | 329 | 097 | .185 | 306 | .400 | 447 | .298 | 164 | .214 | 563 | .221 | 742 |
| | 172 | 036 | .398 | 383 | .604 | 123 | .397 | 223 | .292 | 301 | . 295 | 478 |
| | 030 | 161 | .737 | .079 | .785 | .176 | .501 | 244 | .403 | 247 | .396 | 339 |
| | 128 | 283 | | | .967 | .232 | .603 | .008 | .489 | 176 | .497 | 242 |
| | 418 | 238 | | | 1.000 | .022 | .703 | .096 | .594 | 192 | .597 | 059 |
| | 564 | 211 | | | | | .784 | .147 | .700 | .019 | .702 | . 056 |
| | 710 | 020 | | | | | .868 | .201 | .786 | .109 | .786 | . 126 |
| | 976 | .220 | | | | | .923 | .217 | .858 | .168 | .864 | .173 |
| | 072 | .230 | | | | | | | .919 | .201 | .912 | .175 |
| 1. | 110 | .183 | | | | | | | .967 | .119 | | |
| 0. | 000 | 0.000 | | | | | | | | | | |
| CN= | | 1439 | | 0379 | | 0291 | | 0414 | | 0362 | | 0512 |
| CH= | | 0082 | | 0463 | | 0692 | | 0860 | 0 | 0973 | | 1068 |

| | | | | | $\alpha = 3.43$ | °; C _L = 0.440 | | | | | | |
|-------|-------|-------|-------|-------|-----------------|---------------------------|-------|------|-------|------|-------|--|
| STA | .135 | STA | .307 | STA | .489 | STA | .653 | STA | .804 | STA | .933 | |
| X/C | CP | x/C | CP | x/C | CP | X/C | CP | X/C | CP | X/C | CP | |
| | | | | | UPPER SU | REACE | | | | | | |
| 650 | . 220 | 021 | 51 | .023 | 655 | .025 | 613 | .022 | 493 | .018 | 413 | |
| 557 | 135 | .035 | 748 | .068 | 792 | .079 | 722 | .075 | 678 | .077 | 632 | |
| 452 | 201 | .105 | 695 | .134 | 768 | .133 | 735 | .129 | 678 | .129 | 650 | |
| 311 | 234 | .178 | 530 | .209 | 731 | .214 | 722 | .201 | 697 | .209 | 632 | |
| 023 | 387 | . 286 | 466 | .294 | 671 | .295 | 676 | .294 | 539 | .293 | 598 | |
| .133 | 317 | . 396 | 455 | .404 | 588 | .407 | 653 | .397 | 644 | .494 | 581 | |
| .272 | 285 | .514 | 346 | .497 | 427 | .502 | 633 | .495 | 591 | .590 | 576 | |
| .416 | 259 | .619 | 321 | .599 | 314 | .601 | 352 | .594 | 596 | .693 | 597 | |
| .565 | 163 | .733 | 307 | .700 | 437 | .698 | 393 | .693 | 457 | .777 | 229 | |
| .713 | 103 | .835 | 314 | .864 | 280 | .863 | 232 | .784 | 459 | .861 | 109 | |
| .854 | 150 | .919 | 159 | . 726 | 111 | .923 | 111 | .856 | 317 | .918 | 061 | |
| .980 | 201 | .997 | 043 | .975 | 077 | .977 | 076 | .926 | 148 | .972 | 049 | |
| 1.074 | 256 | | | | | | | .977 | 094 | | | |
| 1.122 | 149 | | | | | | | | | | | |
| | | | | | LOWER SU | RFACE | | | | | | |
| 600 | .12+ | 022 | .305 | .024 | .212 | .025 | .137 | .019 | .056 | .020 | .120 | |
| 616 | .083 | .038 | .080 | .075 | 020 | 0.000 | 0.000 | .066 | 146 | .076 | 157 | |
| C.000 | 0.000 | .101 | 006 | .297 | 106 | .130 | 092 | .136 | 126 | .136 | 218 | |
| 329 | 002 | .185 | 057 | .400 | 110 | .298 | 179 | .214 | 140 | .221 | 237 | |
| 172 | .023 | . 398 | 066 | . 604 | 045 | . 397 | 237 | .292 | 162 | .295 | 272 | |
| 030 | 085 | .737 | .134 | .785 | .166 | .501 | 172 | .403 | 217 | .396 | 209 | |
| .128 | 208 | | | .967 | .198 | .503 | .036 | .489 | 085 | .497 | 242 | |
| .418 | 079 | | | 1.000 | 053 | .703 | .056 | .594 | 197 | .597 | 129 | |
| .564 | 002 | | | | | .784 | .123 | .700 | .040 | .702 | .038 | |
| .710 | .124 | | | | | .868 | .218 | .786 | .159 | .786 | .113 | |
| .976 | .299 | | | | | .923 | .267 | .858 | .230 | .864 | .155 | |
| 1.072 | .205 | | | | | | | .919 | .251 | .912 | .175 | |
| 1.110 | .183 | | | | | | | .967 | .128 | | | |
| C.00C | 0.000 | | | | | | | | | | | |
| | | | .4772 | | .5025 | | .4759 | | .4827 | | .3885 | |
| CM=(| =0473 | | 0683 | | 0470 | | 0835 | | 1110 | | 0834 | |

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; δ_h - -2.5 $^{\circ}$ - Concluded. M = 0.99

| | | | | | $\alpha = 7.99^{\circ}$ | ; $C_L = 0.893$ | | | | | |
|-------|--------|-------|--------|-------|-------------------------|-----------------|--------|------|--------|-------|-------|
| STA | .133 | STA | .307 | STA | .480 | STA | .653 | STA | .804 | STA | . 933 |
| X/C | CP | X/C | CP | X/C | . CP | X/C | CP | X/C | CP | x/C | CP |
| | | | | | UPPER SUI | PEACE | | | | | |
| 000 | 092 | 021 | -1.042 | .023 | | .025 | 974 | .022 | 899 | .018 | 820 |
| 567 | 259 | .035 | -1.169 | .068 | -1.100 | .079 | -1.027 | .075 | -1.006 | .077 | 959 |
| 452 | 319 | .105 | -1.149 | .134 | -1.084 | .133 | -1.026 | .129 | 988 | .129 | 976 |
| 311 | 393 | .178 | -1.107 | .209 | -1.061 | .214 | -1.014 | .201 | 985 | .209 | 947 |
| 023 | 487 | .286 | 954 | .294 | -1.027 | .295 | 978 | .294 | 949 | .293 | 922 |
| .133 | 402 | .396 | 782 | .404 | -1.010 | .407 | 976 | .397 | 932 | .494 | 899 |
| .272 | 347 | .514 | 577 | .497 | 968 | .502 | 962 | .495 | 920 | .590 | 889 |
| .416 | 305 | .618 | 449 | .599 | 800 | .601 | 921 | .594 | 902 | .693 | 872 |
| .565 | 226 | .733 | 401 | .700 | 621 | .698 | 625 | .693 | 714 | .777 | 766 |
| .713 | 185 | .835 | 373 | .864 | 384 | .863 | 511 | .784 | 548 | .861 | 493 |
| .854 | 244 | .919 | 239 | .926 | 313 | .923 | 495 | .856 | 463 | .918 | 447 |
| .980 | 302 | .987 | 112 | .975 | 284 | .977 | 474 | .926 | 408 | .972 | 459 |
| 1.074 | 375 | . 701 | 112 | .715 | 204 | .911 | /- | .977 | 413 | . 712 | 457 |
| 1.122 | 310 | | | | | | | .411 | 415 | | |
| 1.122 | 310 | | | | | | | | | | |
| | | | | | LOWER SU | RFACE | | | | | |
| 660 | .197 | 022 | .490 | .024 | .512 | .025 | .447 | .019 | .369 | .020 | . 364 |
| 010 | .217 | .038 | .357 | .075 | .302 | 0.000 | 0.000 | .066 | .141 | .076 | .073 |
| 0.000 | 0.000 | .101 | .26¢ | .297 | .095 | .130 | .141 | .136 | .054 | .136 | 027 |
| 329 | .130 | .185 | .202 | .400 | .043 | .298 | .035 | .214 | .001 | .221 | 101 |
| 172 | .128 | .398 | .110 | .604 | 012 | .397 | 034 | .292 | 043 | .295 | 165 |
| 030 | .043 | .737 | .199 | .785 | .183 | .501 | 114 | .403 | 008 | .396 | 154 |
| .128 | 005 | | | .967 | .121 | .603 | .029 | .489 | 076 | .497 | 241 |
| .418 | .102 | | | 1.000 | 293 | .703 | .019 | .594 | 207 | .597 | 225 |
| .564 | .137 | | | | | .784 | .057 | .700 | 018 | .702 | 085 |
| .710 | .238 | | | | | .868 | .210 | .786 | .100 | .786 | 000 |
| .976 | .368 | | | | | .923 | .270 | .858 | .182 | .864 | . 049 |
| 1.072 | .295 | | | | | | | .919 | .193 | .912 | .045 |
| 1.110 | .201 | | | | | | | .967 | .009 | | |
| 0.000 | 0.000 | | | | | | | | | | |
| CN= . | 8307 | | 9363 | | 9365 | | 9087 | | 8211 | | 7527 |
| | 0383 | | 0922 | | 1397 | | 1611 | | 1480 | | 1456 |
| | 0 30 3 | | 0,22 | | 1,,,, | | 1011 | | 1400 | | 1430 |

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE AREA-RULE ADDITIONS (SEE TABLE VI FOR ORIFICE LOCATIONS): $\delta_{\rm h} = -2.5^{\rm o}$

M = 0.50

| Fuse! | | | | | c ^b | for | | | |
|----------------|-------|--------|----------------------|------------------------|------------------------------|--------------|-----------------------|------------------------------|----------------------|
| ст | in. | Θ = 80 | 0 = 46° | Θ = 136 ⁰ | 0 = 180° | 0 = 80 | 0 = 46 ⁰ | Θ = 136 ⁰ | Θ = 180 ⁰ |
| | | o | = -4.08 ⁰ | ; c _L = -0. | .339 | | $\alpha = 0^{\circ};$ | C _L = 0.039 | |
| 153.0 154.4 | 60.22 | 0.073 | 0.062 | -0.014 .010 | 0.028 | 0.051 | 0.042 | 0.000 | 0.034 |
| 156.1 | | .127 | 100 | .041 | .059 | 108 | .066 | .025 | .053 |
| 157.6 | 62.04 | .127 | .100 .105 | .062 | .059 .081 .055 | .108 | .087 | .049 .066 .073 | .075 |
| 159.2 | 62.67 | | .084 | .070 | .055 | | .080 | .073 | .054 |
| 160.8 | 63.30 | .058 | | | .015 | .057 | | | .026 |
| | | 0 | = 4.00°; | C _L = 0.39 | 96 | | α = 8.00 | 0°; C _L = 0. | 730 |
| 153.0 | 60.22 | 0.041 | 0.025 | 0.020 | 0.053 | 0.020 | 0.003 | 0.047 | 0.073 |
| 154.4 | 60.80 | 101 | .054 | .042 | .067 | 005 | .032 | .057 .075 .084 .087 | .091 |
| 156.1 157.6 | 61.46 | .101 | .080 | .062 | .076 .092 .061 | .085 .110 | .065 .079 .060 | .0/5 | .091 |
| 159.2 | 62.67 | .124 | .074 | .080 | .061 | .110 | 060 | 087 | .103 |
| 160.8 | 63.30 | .061 | .074 | .075 | .031 | .046 | ,00 | | .018 |
| | | 0 | = 11.07 ⁰ | ; c _L = 0.9 | 152 | | | | |
| 153.0 | 60.22 | 0.004 | -0.012 | 0.052 | 0.091 | | | | |
| 154.4 156.1 | 60.80 | .078 | .012 .054 .075 | .059 | .098 .104 .117 .070 | | | | |
| 157.6 | 62.04 | .110 | .075 | .088 | .117 | | | | |
| 159.2 | 62.67 | | .063 | .090 | .070 | | | | |
| 160.8 | 63.30 | .048 | | | .017 | | | | |

TABLE VII. - PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE AREA-RULE ADDITIONS; δ_h = -2.5° - Continued.

M = 0.80

| | elage tion | | | | C _p | for | | | |
|--|--|-------------------------------|--|--|---|-------------------------------|--|--|---|
| cm | in. | Θ = 80 | Θ = 46 ⁰ | $\Theta = 136^{\circ}$ | Θ = 180 ⁰ | $\Theta = 8^{\circ}$ | Θ = 46 ⁰ | Θ = 136 ⁰ | Θ = 180 ⁰ |
| | | | $\alpha = 3.98^{\circ};$ | C _L = -0.3 | 72 | c | $a = 0.03^{\circ};$ | c _L = -0.0 | 34 |
| 153.0 154.4 156.1 157.6 159.2 160.8 | 60.22 60.80 61.46 62.04 62.67 63.30 | 0.072 .150 .175 | 0.061 .090 .117 .134 .109 | -0.015 .014 .055 .074 .089 | 0.021 .048 .079 .099 .078 .025 | 0.047 .123 .153 | 0.043 .076 .109 .128 .103 | -0.002 .031 .062 .078 .090 | 0.033 .057 .072 .090 .069 |
| | | | $\alpha = 4.02^{\circ};$ | C _L = 0.42 | 7 | C | = 8.14 ⁰ ; | C _L = 0.79 | 12 |
| 153.0 154.4 156.1 157.6 159.2 160.8 | 60.22 60.80 61.46 62.04 62.67 63.30 | 0.037 .113 .142 .075 | 0.026 .062 .097 .122 .100 | 0.015 .043 .069 .088 .097 | 0.052 .070 .085 .100 .072 .038 | 0.016 .103 .122 .068 | -0.012 .037 .078 .110 .086 | 0.035 .061 .083 .100 .106 | 0.082 .091 .097 .122 .073 .030 |
| | | | $\alpha = 11.22^{\circ}$ | ; c _L = 0.9 | 90 | | | | |
| 153.0 154.4 156.1 157.6 159.2 160.8 | 60.22 60,80 61.46 62.04 62.67 63.30 | -0.014 .087 .125 | -0.036 .018 .057 .090 .082 | 0.051 .071 .086 .104 .102 | 0.090 .112 .114 .130 .082 .017 | | | | |

M = 0.90

| | elage tion | | | | c | for | | | |
|----------------|---------------|--------|--------------------------|------------------------|--------------------|--------|---------------------|-----------------------|----------------------|
| cm | in. | 0 = 80 | Θ = 46 ⁰ | Θ = 136 ⁰ | ө 180 ⁰ | Θ = 80 | Θ = 46 ⁰ | θ = 136 ⁰ | θ = 180 ⁰ |
| | | | $\alpha = -3.82^{\circ}$ | ; c _L = -0. | .389 | (| $x = 0.02^{\circ};$ | C _L = 0.02 | 24 |
| 153.0 154.4 | 60.22 | 0.064 | 0.054 | -0.021 .021 | 0.018 | 0.052 | 0.036 | -0.005 .033 | 0.030 |
| 156.1 157.6 | 61.46 | .155 | .130 | .062 | .079 .109 | .138 | .119 | .066 | .081 |
| 159.2 | 62.67 | .190 | :117 | .103 | .088 | .100 | .118 | .105 | .099 |
| 160.8 | 63.30 | .082 | | | .039 | .097 | | | .062 |
| | | | $\alpha = 3.97^{\circ};$ | C _L = 0.46 | 51 | (| x = 8.17°; | CL = 0.86 | 3 |
| 153.0 | 60.22 | 0.033 | 0.014 | 0.012 | 0.051 | 0.002 | -0.017 .043 | 0.034 | 0.069 |
| 156.1 | 61.46 | .126 | .107 | .080 | .087 | .102 | .090 | .092 | .106 |
| 157.6 159.2 | 62.04 | .155 | .133 | .104 | .110 | .135 | .125 | .108 | .128 |
| 160.8 | 63.30 | .095 | | .,,, | .049 | .085 | .100 | | .041 |

TABLE VII. - PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE AREA-RULE ADDITIONS; $8_h^{-2.5}$ - Concluded.

M = 0.95

| | elage tion | | | | c _p | for | | | |
|--|--|-------------------------------|---------------------------------------|--|---|-------------------------------|--|--|---------------------------------------|
| cm | in. | 0 = 80 | 0 = 46 ⁰ | Θ = 136 ⁰ | Θ = 180 ⁰ | $\Theta = 8^{\circ}$ | Θ = 46 ⁰ | Θ = 136 ⁰ | Θ = 180 ⁰ |
| | | α | = -3.97 ⁰ | C _L = -0.4 | 40 | (| $x = -0.09^{\circ}$ | ; C _L = 0.0 | 112 |
| 153.0 154.4 156.1 157.6 159.2 160.8 | 60.22 60.80 61.46 62.04 62.67 63.30 | 0.066 .169 .214 .097 | 0.050 .100 .141 .158 .135 | -0.024 .025 .075 .105 .120 | 0.012 .054 .087 .122 .101 | 0.050 .151 .186 .112 | 0.035 .088 .132 .156 .137 | -0.010 .040 .082 .108 .123 | 0.033 .065 .090 .116 .100 |
| | | α | = 3.96°; | C _L = 0.495 | | C | x = 8.15°; | c _L = 0.90 | 2 |
| 153.0 154.4 156.1 157.6 159.2 160.8 | 60.22 60.80 61.46 62.04 62.67 63.30 | 0.030 .133 .167 | 0.012 .071 .126 .154 .135 | 0.015 .053 .093 .118 .129 | 0.053 .079 .102 .128 .102 .070 | -0.010 .120 .154 | -0.029 .053 .109 .138 .130 | 0.040 .070 .094 .122 .125 | 0.079 .105 .117 .138 .106 |

| | | | | M = | 0.99 | | | | |
|--|--|--------------------------------|--|---------------------------------------|--|--------------------------------|--|---------------------------------------|---|
| | elage tton | | | | C _p fo | r | | | |
| ст | in. | 0 = 80 | Θ = 46 ⁰ | Θ = 136 ⁰ | $\Theta = 180^{\circ}$ | $\Theta = 8^{\circ}$ | Θ = 46 ⁰ | Θ = 136 ⁰ | 0 = 180° |
| | | a | = -3.96 ⁰ | ; C _L = -0.4 | 459 | (| $\alpha = -0.05^{\circ}$ | ; c _L = -0. | 004 |
| 153.0 154.4 156.1 157.6 159.2 160.8 | 60,22 60.80 61.46 62.04 62.67 63.30 | 0.091 .203 .252 .116 | 0.057 .106 .151 .176 .155 | -0.083 002 .066 .109 | -0.052 .026 .078 .123 .117 .087 | 0.041 .174 .216 .132 | 0.019 .090 .148 .176 .161 | 0.012 .048 .095 .129 .145 | 0.027 .069 .103 .129 .126 .110 |
| | | α | $= 3.43^{\circ};$ | C _L = 0,440 |) | C | $\alpha = 7.99^{\circ};$ | C _L = 0.89 |)3 |
| 153.0 154.4 156.1 157.1 159.2 160.8 | 60,22 60.80 61.46 62.04 62.67 63.30 | -0.001 .145 .191 .133 | -0.036 .069 .138 .171 .160 | 0.005 .057 .101 .131 .147 | 0.046 .088 .109 .136 .127 | -0.016 .130 .168 .134 | -0.075 .056 .127 .166 .155 | 0.056 .086 .117 .141 .151 | 0,095 .121 .135 .160 .135 .087 |

TABLE XIII.- PRESSURE DISTRIBUTIONS OVER SIDE OF FUSELAGE WITH AREA RULE ADDITIONS

| | 8.01 | 0090 | 5050- | 1860. | 61115 | 1555 | 1135 | 1900. | 2141 | 2045 | 1633 | 1454 | 0730 | 0310 | 1176 | 1567 | 1930 | .0390 | 6883 | 1128 | 1176 | 1305 | .1073 | 1034 | 6560 | CACI | .0528 | .1833 | . 173A | .072ª | . 0348 | 0187 | C2R2 | 1412 | 0343 | 0251 | 0156 | 7650- | -1133 | 1601 | 1037 | 6883 | 7150 | 5650- | 0895 | | - 0490 | 0360. |
|------------------------------------|-------|--------|-----------|----------|--------|--------|---------|-------|------|--------|--------|--------|-------|------|------|------|-------|--------|--------|-------|------|-------|-------|--------|--------|-------|---------|-------|--------|--------|---------|------|-------|------|--------|-------|--------|--------|-------|------|---------|--------|------|--------|-------|-------|--------|-----------|
| eg. of | 4.25 | .0423 | 2135 | 2001 | - 1110 | 10+11- | 1217 | 3242 | 1547 | 1539 | 1812 | 1379 | 0916 | 0574 | 1229 | 1531 | 1750 | 0398 | 9600 | 1273 | 1231 | 1219 | .0324 | .3457 | .0355 | .0324 | . 7264 | .1692 | .1563 | .0655 | .0215 | 0178 | 3285 | 0253 | 3274 | 0319 | - 3290 | 1697. | | | | | | - 0939 | 1080 | | 0440 | |
| $at \alpha, d$ | 0.25 | . 6877 | .0363 | 2241- | 0124 | 1269 | 1365 | 0785 | 1697 | 1961 | 1367 | 1492 | 1176 | 0825 | 1367 | 1656 | 1801 | 1285 | 1480 | 1466 | 1442 | -1280 | 0412 | 0241 | 0179 | 3045 | .0041 | .1439 | .1212 | .0543 | 0184 | 0338 | 0450 | 0485 | 0570 | 3622 | 0674 | 61010- | 1223 | 1196 | 1133 | 1137 | 6801 | 0853 | 0795 | 0566 | 0522 | 0700- |
| C _P | -3.76 | .1040 | 7680. | 0101. | 1351 | 1135 | 1475 | 1475 | 1453 | 2156 | 2130 | 1878 | 1678 | 1051 | 1655 | 1913 | 2693 | -1988 | 2073 | 2127 | 1752 | 1417 | 41114 | 5050- | 0741 | 6990- | 0300 | 20876 | 4680 | .0507 | 0623 | 0384 | 0567 | 0664 | 0806 | 0884 | 6965 | 771175 | 1404 | 1390 | 1322 | 1354 | 1341 | 9520- | 0697 | 9400- | 0519 | 1100- |
| | 10.24 | 1299 | 6,1. | 111 | 27.1. | 14,2 | 1246 | 6.00. | ZARA | 22.3 | -,2.54 | 15 6.2 | 5070- | | 1369 | 1949 | 27.73 | 2342 | 3720 | | 255 | 1358 | 1417 | 1242 | 1183 | 2350 | \$7.50 | 05.41 | 1647 | . 1253 | 5524. | 7433 | 5.750 | 6:30 | - 0116 | - 188 | 314 | 70.00 | 1001 | 1014 | -1015 | e | | 9560- | - 184 | 8,178 | - 1306 | |
| -Jo | 7.93 | 1422 | | | | | 1176 | | | 1827 | | | | | | | | | | | | | | | | | 4070 | 27.1. | 1005 | .5=2 | . (415 | | | | | | 1168 | | | | | 1.7781 | | | | | 0407 | |
| 0.8 α, deg. | 4.14 | | | | | | | | | | | | | | | | | | | | | | | | | .(231 | .0191 | | | | .0141 | | | | 0331 | | | | | | | | | | | | 0350 | |
| $M = 0$ $C_{p} \text{ at } \alpha$ | 0.25 | .0705 | | | | | | | | | | | | | | | | | | | | -1120 | | | | | 0372 | 1348 | 11110 | .0453 | 0235 | 0333 | 0411 | 0425 | 0548 | 0524 | 0536 | 1060 | 1133 | 1967 | b560 ·- | 0977 | 0924 | 0715 | 0672 | 0250 | 0640 | 74 611.0- |
| | -3.63 | .1291 | .0729 | 1944 | 1314 | 6560 | -, 1531 | 1347 | 1351 | 1940 | 8561 | 1759 | 1547 | | | | -1366 | 1639 | 1368 | 136.0 | 0451 | 1376 | 1226 | - 5324 | - 0762 | 2010 | 0353 | 1769 | . 6827 | .0437 | (631 | (317 | 6477 | 0571 | 0735 | 0442 | 0957 | 0443 | 1252 | 1213 | 1197 | 1169 | 1150 | 0525 | 0625 | 0518 | 0529 | 0773 |
| | .14 | 90 | 32 | 70 | .22 | 76 | .73 | 19 | 17 | 13 | 30 | 65 | e a | 559 | 77 | 10 | | | 22 | | 7 . | 25 | | | 517 | | 55 | | | 10 | 21 | 5.5 | 20 | 5.5 | .85 | 54. | 23 | 69. | 181 | 161 | 54. | co | 645 | 120 | 112 | 14.1 | 35 | 132 |
| | 12.1 | 7 1796 | | 7690 - 6 | 3 .04 | 6 15 | **** | 701 | 6 20 | 0 20 | 3 2 | 1 1 | 1 0 | 3 66 | 8 15 | 0 27 | 200 | 200 | | | | | | 71. | - | 11. | 1610. 6 | 1001 | | | 3 .0521 | | | | | | | | | | | | | | | | 0232 | |
| -Jo | 7.79 | | | | | | | | | | | | | | | | | | | | | | | | | | .0279 | | | | 0383 | | | | | | | | | | | | | | | | 0254 | i |
| deg. | 4.50 | .3139 | 0301 | 1037 | 0204 | 1135 | 3949 | 0131 | 1533 | 1+73 | 1438 | 1095 | 0728 | 3636 | 1173 | 1328 | -1439 | - 0233 | - 0773 | 2000 | 1004 | 1020 | 7363 | 2400 | 0.2402 | 2270 | .0155 | 1345 | 1173 | 0440 | 0630 | 2195 | 3279 | 0219 | 0301 | 3283 | 3293 | 0712 | 3873 | 3723 | 2633 | 0639 | 0539 | 3674 | 0567 | 0363 | 0229 | 3371 |
| $= 0.5$ at α , | 0.09 | .0524 | .0228 | 1239 | 0672 | 0393 | 1135 | 0044 | 1263 | 1570 | 1951 | 1255 | 1303 | 0783 | 1271 | 1465 | 1442 | - 0075 | | 1100 | 1050 | 0000 | 0366 | - 0339 | - 6223 | 2000 | 0043 | | | | 0263 | | | | | | 6375 | | | | | | | | | | 0329 | |
| C _P | 3.23 | .1345 | an : 40 • | 1077 | 1501 | 7720 | 13:3 | 1184 | 0031 | -117:0 | 1747 | 1527 | 2051 | 4750 | 16/5 | 1737 | 0081- | | 0001 | | | 0000 | | 10000 | 62.00 | | 0341 | 4.57 | 3870 | | . 05.5 | 0272 | 2,57. | 5:40 | | | | | | | | | | | | | 0486 | |
| | | | | | | | | | | | | | | | | | | | | | | 131 | | | | | 126 | | | | | | | | | | | | | | | | | | | | 145 | |

TABLE XIII.- PRESSURE DISTRIBUTIONS OVER SIDE OF FUSELAGE WITH AREA RULE ADDITIONS (CONCLUDED)

| -3.62 0.19 | .1193 .0311 | 1087 C | 0. 0460.0 | 1075 1 | 1132 0 | 2165 - 2 | 2412 2 | 20162 - | 1694 - | 1180 | 65335 6 | 15021928 | 5 2205 2323 | 27432906 | 1470 0582 | 8 1778 1219 | 518681503 | 5 1650 1503 | 314491552 | 6242 .0501 | 7610. 6600. | C305 -0782 | | . 1802 .1815 . | .1430 .1707 | .0696 .0920 .0569 | 0.0013 .0188 | 0628 0166 0369 | .0769 6195 0391 | .C344 C302 0445 | .1033 0322 0438 | .122703840433 | 1203 0915 1129 | 1603 - 1150 - 1354 | 1595 1105 1192 | 1712 1170 1197 | .164911111153 | 36023642 | .285824332429 | 52121782133 | 199 1803 1757 |
|------------|------------------------|--------|-----------|--------|--------|----------|--------|---------|--------|-------|---------|----------|-------------|----------|-----------|-------------|-----------|-------------|-----------|------------|-------------|------------|-------|----------------|-------------|-------------------|--------------|----------------|-----------------|-----------------|-----------------|---------------|----------------|--------------------|----------------|----------------|---------------|----------|---------------|-------------|---------------|
| 7.85 | 0257 | 0393 | .1193 | 1411 | -1067 | 2002 | 2,494 | 2304 | - 1237 | 0764 | 7100 | -1028 | -1494 | 1906 | • 0294 | 0597 | 1033 | 1181 | 1246 | .1175 | 1017 | 1011 | .0729 | .1801 | -1714 | • 0106 | .0505 | 2660.1 | 0524 | 0512 | 0498 | 0447 | 0791 | 1010 | 2000 | 0832 | 0353 | 0946 | 0339 | 0635 | 0401 |
| 25 4.08 | 394 .0655 498 .0170 | 1.0907 | 0010 | 1341 | 1186 | 6770- | - 2520 | 67570 | - 1630 | 1003 | - 0308 | 1103 | -1448 | 7 | 0 | | ; | 7 | - | • | • | • | | - | 7 | • | • | | - | | | 0454 | 1088 0839 | . 1000 | | 0.1 | 0.1 | | | • | • |
| -3.66 0.2 | 1415 . 63 | 520 1 | 1488 0 | 74 1 | 231 | 20 - 61 | 1.5 | 15 6 | 00 | 10 10 | 100 | 38 | 05 | 59 1 | 165 | 12 1 | 02 2 | 00 1 | 96 1 | 20 -00 | 36 - 6 | 100 | | . 675 | 162 . | . 6253 | -0502 | 341 | 0659 | .0783 | 678 | -1001- | 1219 10 | | 1520 | 1537 - | .1452 | .0844 | - 111 | i | i |

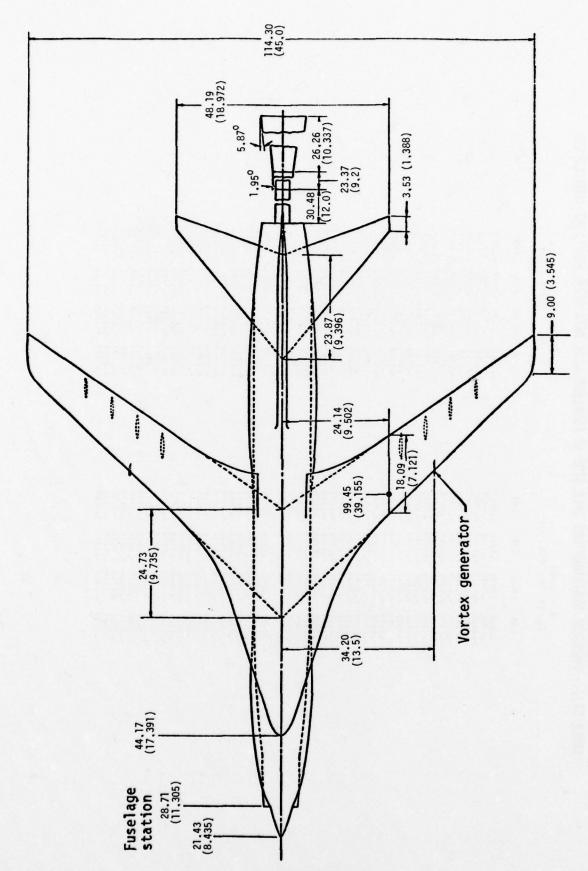


Figure 5.1.- Planform view of TF-8A supercritical wing research model.

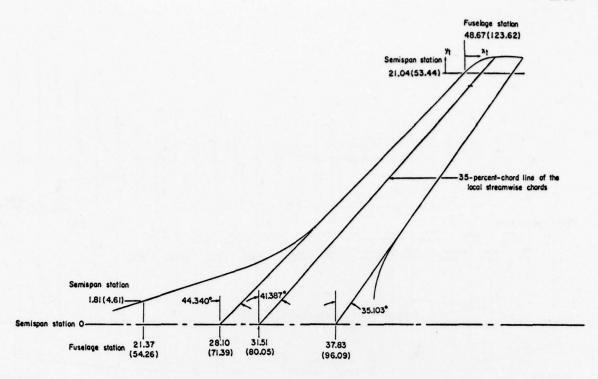


Figure 5.2.- Wing semispan planform layout with model dimensions.

Trailing-Edge Extension Contour

| Fusela | ge station | Semisp | oan station |
|--------|-------------|--------|-------------|
| Inches | Centimeters | Inches | Centimeters |
| 41.09 | 104.35 | 2,26 | 5.74 |
| 41.21 | 104.70 | 3.13 | 7.91 |
| 41.43 | 105.22 | 4.00 | 10.17 |
| 41.74 | 106.00 | 4.87 | 12.35 |
| 42.13 | 107.04 | 5.74 | 14.61 |
| 42.60 | 108.17 | 6.61 | 16.78 |
| 43.14 | 109.57 | 7.48 | 18.90 |
| 43.71 | 111.04 | 8.35 | 21.22 |

Tip Contour

Glove Leading-Edge Contour

| x _t , In. | x _t , cm | y _t , In. | y _t , cm | Fusela | ge station | Semis | pan station |
|----------------------|---------------------|----------------------|---------------------|--------|-------------|--------|-------------|
| 0 | 0 | 0 | 0 | Inches | Centimeters | Inches | Centimeters |
| .13 | .35 | .13 | .35 | | | | |
| .38 | .96 | .39 | .96 | 21.37 | 54.26 | 1.81 | 4.61 |
| .63 | 1.57 | .64 | 1.65 | 21.74 | 55.22 | 1.92 | 4.87 |
| .88 | 2.26 | .85 | 2.17 | 22.60 | 57.39 | 2.21 | 5,57 |
| 1.13 | 2.87 | 1.01 | 2.61 | 23.48 | 59.65 | 2,49 | 6.35 |
| 1.38 | 3.48 | 1.14 | 2.87 | 24,35 | 61,83 | 2.77 | 7.04 |
| 1.63 | 4.17 | 1.24 | 3.13 | 25.22 | 64.09 | 3,05 | 7,74 |
| 1.88 | 4.78 | 1.31 | 3.30 | 26.09 | 66.26 | 3,33 | 8,43 |
| 2.13 | 5,39 | 1.36 | 3,48 | 26.96 | 68.43 | 3.62 | 9,22 |
| 2.38 | 6.00 | 1.40 | 3.57 | 27.83 | 70.70 | 3.90 | 9,91 |
| 2.63 | 6.70 | 1.43 | 3.65 | 28.70 | 72.87 | 4,18 | 10.60 |
| 2.88 | 7.30 | 1.44 | | 29.57 | 75.13 | 4.47 | .11.39 |
| 3.13 | 7,91 | 1.45 | 3.65 3.65 | 30.17 | 76,61 | 4,68 | 11,91 |
| 3.38 | 8,61 | 1.45 | 3.65 | 30.78 | 78.17 | 4.91 | 12.43 |
| 3.63 | 9.22 | 1.45 | 3.65 | 31,30 | 79,48 | 5,13 | 13.04 |
| 3.88 | 9.83 | 1.45 | 3.65 | 32.17 | 81.74 | 5,52 | 14.00 |
| 4.13 | 10.52 | 1.45 | 3.65 | 33.04 | 83.91 | 5.97 | 15.13 |
| 4.38 | 11.13 | 1.44 | 3.65 | 33.91 | 86.17 | 6.49 | 16.52 |
| 4.60 | 11.65 | 1.44 | 3.65 | 34.78 | 88.35 | 7.08 | 18.00 |
| 4.85 | 12.34 | 1.43 | 3.65 | 35.65 | 90.52 | 7.78 | 19,74 |
| 4.96 | 12.61 | 1.43 | 3,65 | 36.52 | 92,78 | 8.62 | 21,91 |

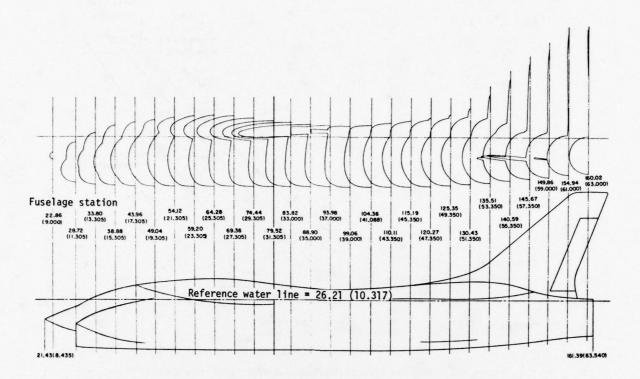


Figure 5.3.- Cross-section layout of 0.087-scale model with fuselage area-rule additions.

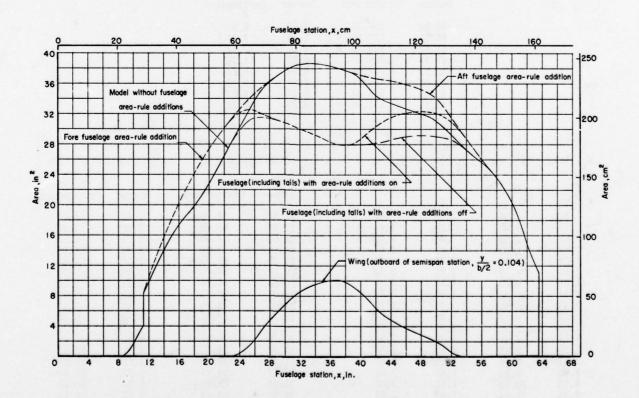
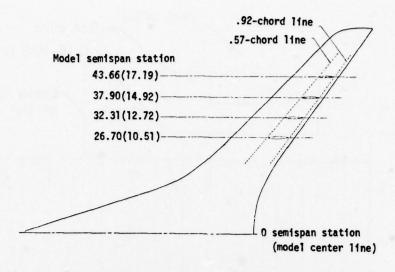
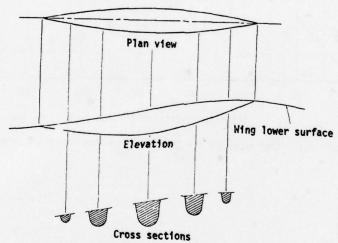


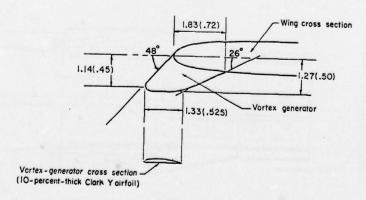
Figure 5.4.- Longitudinal progress of cross-section area taken normal to fuselage centerline. Model and fuselage areas include $28.39~{\rm cm}^2$ (4.40 ${\rm in}^2$) of inlet area.



(a) Location of aileron hinge fairings.



(b) Sketch of typical aileron hinge fairing.



(c) Sketch of underwing leading-edge vortex generator.

Figure 5.5 - Sketches giving details of aileron hinge fairings and vortex generator. See Figure 5.1.

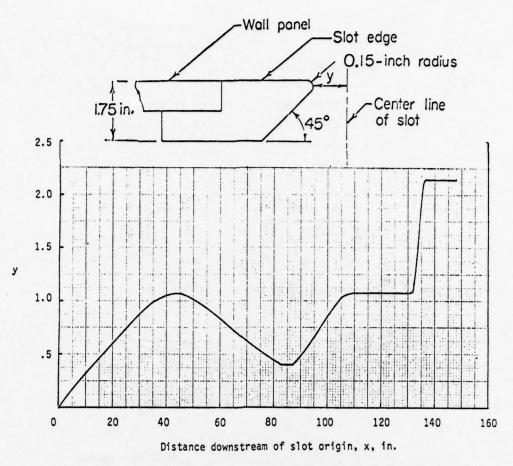


Figure 5.6.- Slot geometry for the Langley 8-Foot Transonic Pressure Tunnel.

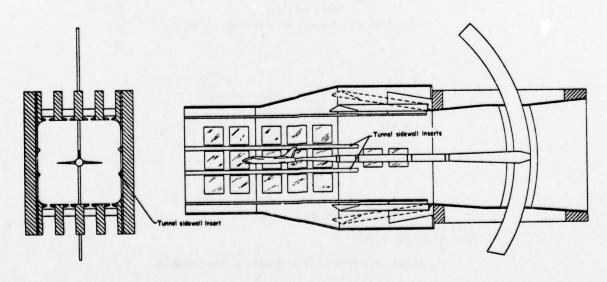


Figure 5.7.- Tunnel test section with sidewall inserts,

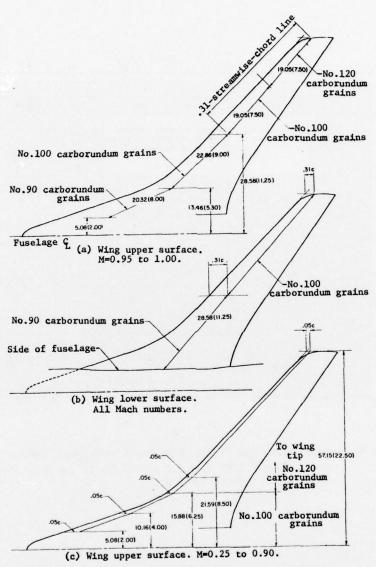


Figure 5.8.- Boundary-layer trip arrangements. Dimensions are in centimeters (inches).

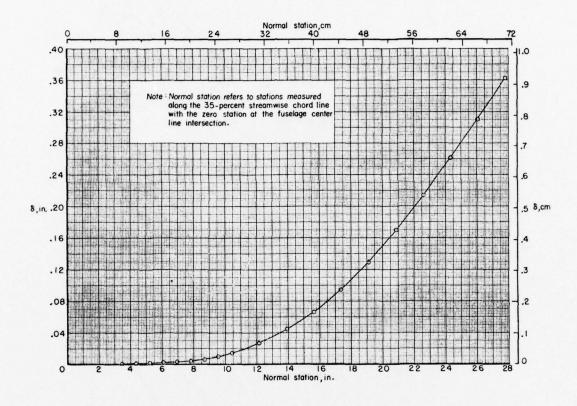


Figure 5.9.- Vertical deflection of model wing due to aerodynamic loading. M = 0.99; c_L = 0.429; q = 44 l93 N/m² (923 lb/sq ft); R = 16.1 x 10⁶ per meter (4.9 x 10⁶ per foot). Note: Tip at normal station 30.

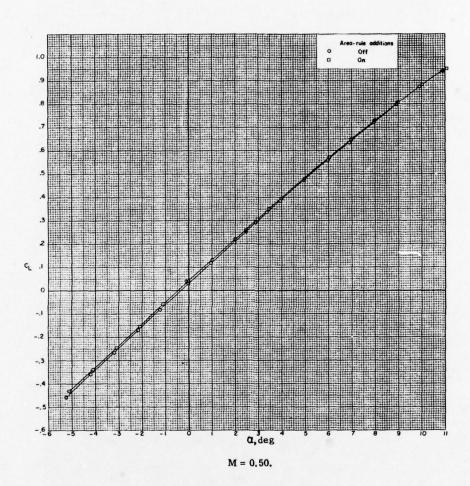
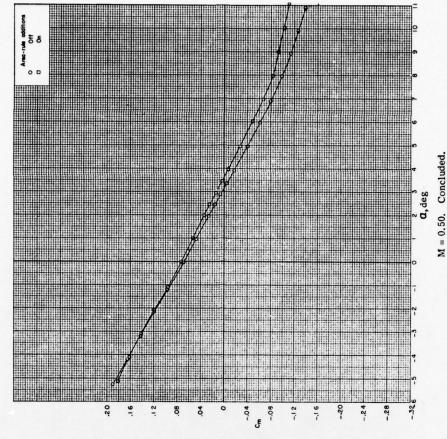


Figure 5.10.- Longitudinal force and moment characteristics for supercritical wing research airplane model.



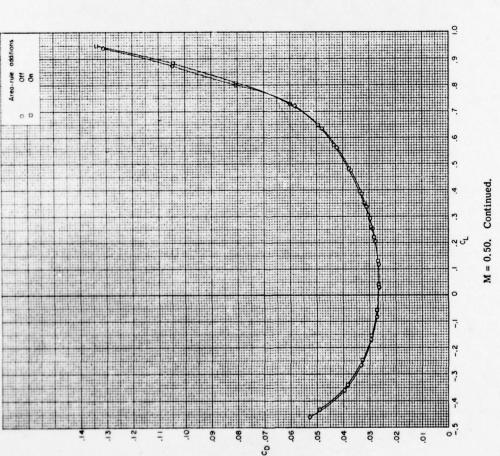
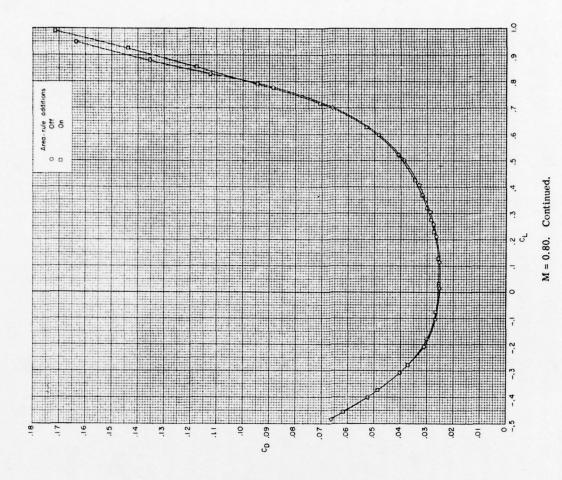


Figure 5.10.- Continued



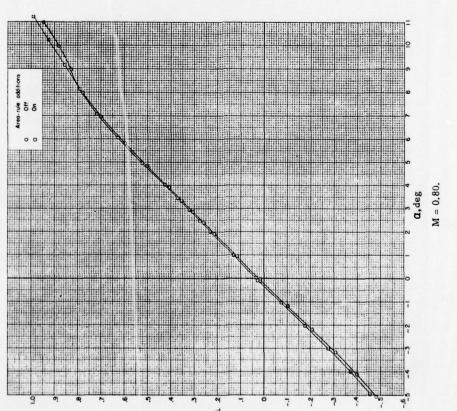
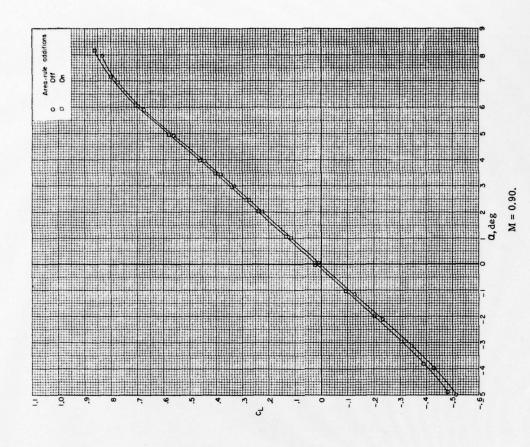
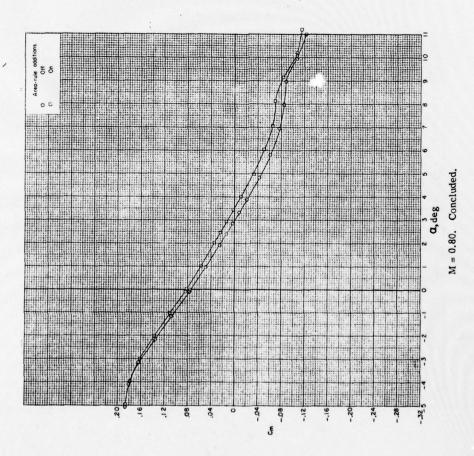


Figure 5.10.- Continued







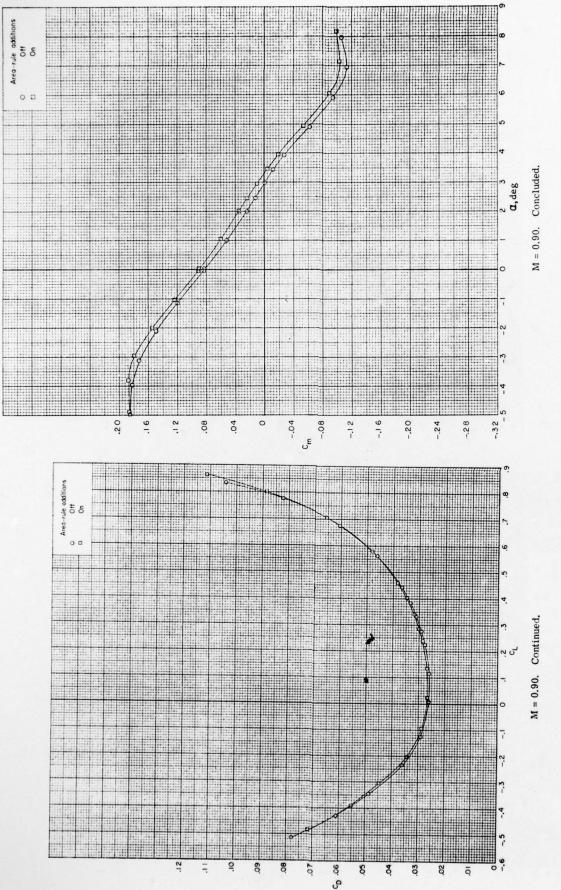
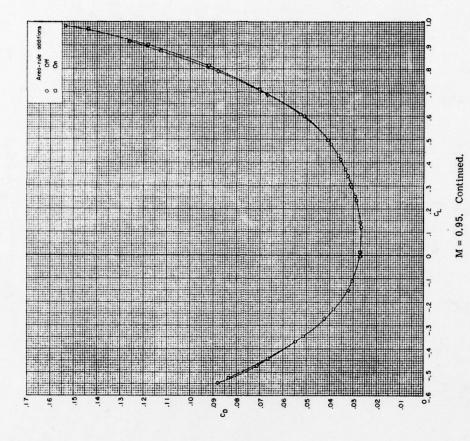


Figure 5.10.- Continued



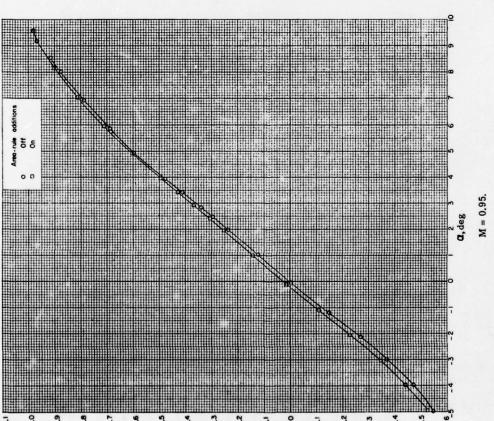


Figure 5.10.- Continued

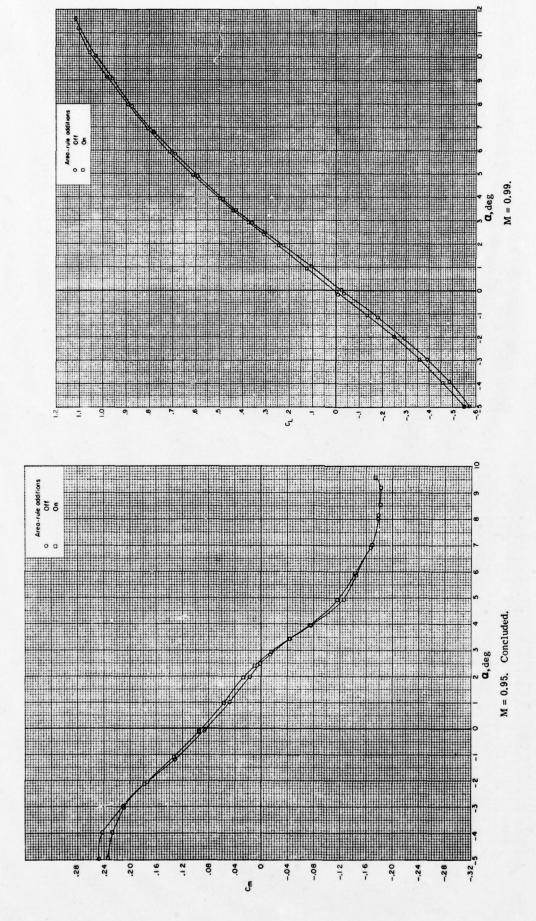
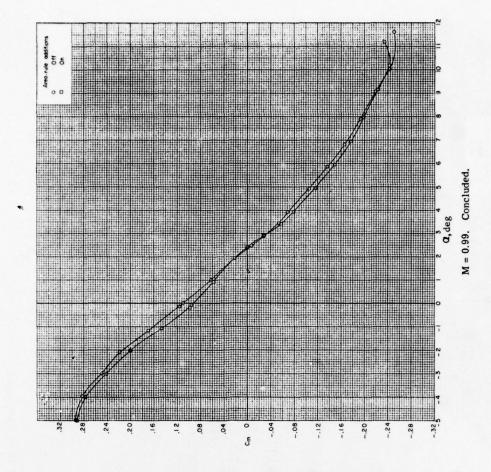


Figure 5.10. - Continued



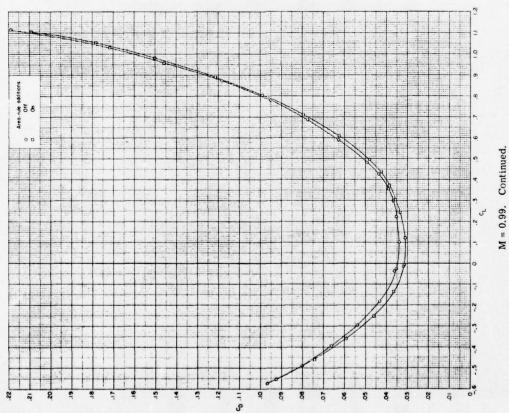
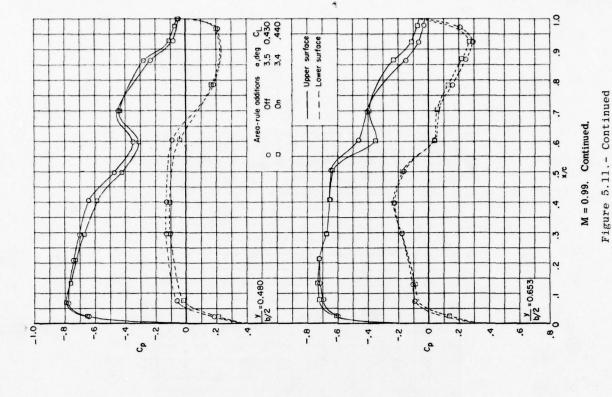
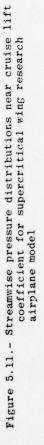
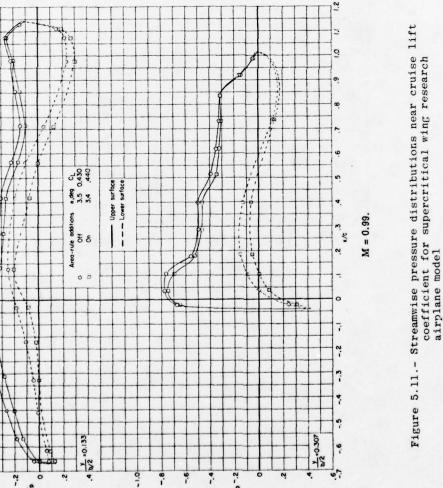


Figure 5.10.- Continued

Figure 5.10.- Concluded







Cp -.2

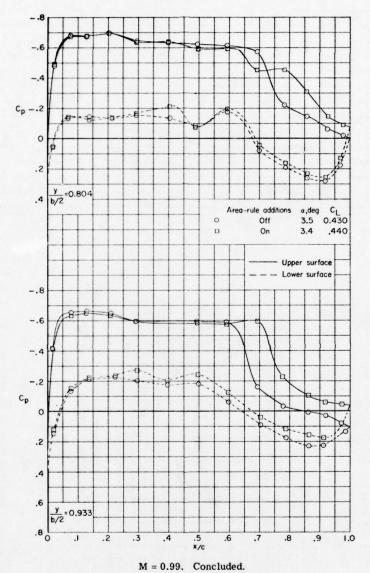


Figure 5.11.- Concluded

APPENDIX C

BODY-ALONE CONFIGURATIONS

Guide to the Data

The body-alone data are included in the data base to provide data on rather simple three-dimensional (3D) configurations to aid in theory development and program checkout. The configurations include a 1.5-diameter ogive-cylinder (C-1), a cubic-cylinder-cubic body (C-2), a 10-degree cone cylinder (C-3), and an equivalent body of the ONERA calibration model (C-4). Pressures along 13 rays and force data were taken on the ogive-cylinder at angles of attack from 0 to 30 degrees and Mach numbers from 0.5 to 1.2. Body and some tunnel wall pressures and force data are given for the cubic-cylinder-cubic model at angles of attack from -3 to 5 degrees and Mach numbers of 0.5, 0.8, 1.0, and 1.2. The cone-cylinder pressure data were taken at zero angle of attack at Mach numbers from 0.9 to 1.4. Pressures along two rays and forebody drag are presented for the ONERA model at zero incidence and Mach numbers from 0.6 to 1.0.

The model and tunnel information format is the same as used for the 3D configurations and includes, in addition to the data, information on the model geometry, the wind tunnel, test parameters, instrumentation, and data accuracy. This information is provided to assist the user in determining the usefulness of each data set for his application.

As mentioned in Chapter 2 the model-to-tunnel blockage ratios are small enough so that the wall interference effects in the subsonic range are less than 10^{-2} on the pressure coefficient. However, all of the data obtained at supersonic speeds contain some evidence of reflected waves. These disturbances are rather easily discerned at zero incidence and do not significantly affect the data upstream of the disturbance. At angle of attack, however, it may be difficult to ascertain if irregular pressure variations are caused by shed vortices and therefore are "legitimate" or are caused by reflected waves and therefore are "illegitimate." It is left to the user to discriminate between the two phenomena.

1. 1.5 D Ogive - Circular Cylinder Body, L/D = 21.5

K. Hartmann

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt Aerodynamische Versuchsanstalt E.V.

1.1 Introduction

This paper has been prepared for the Working Group 04 of the Fluid Dynamics Panel of AGARD as a contribution to the "Experimental Data Base for Computer Program Assessment" that is being established. This contribution contains selected data from force- and surface pressure distribution measurements as well as results from flow visualization experiments, e.g. smoke and oil flow pictures. The experimental investigations were performed in the DFVLR 1 x 1 Meter Transonic Wind Tunnel and in the High-Speed Wind Tunnel of the DFVLR/AVA. Figure 1.1 shows the tested model consisting of a 1.5 D long circular arc tangent ogive and a 20 D long afterbody of circular cross section (D = 4.5 cm body diameter). This body geometry is typical for most missiles. The model was manufactured of steel with a very smooth surface; transition was always free.

Two different model supports had to be used since the angle of attack range is limited to \pm 15°. The model supports are shown in Figure 1.2.

The data presented here are not corrected for wall constraints.

At small supersonic Mach numbers the disturbances starting at the model nose are not completely cancelled at the test section walls. The effect of the reflected waves on the pressure distribution is, however, clearly visible in the respective figures, e.g. Figure 1.8. The reflection pattern of the waves is shown schematically in Fig. 1.3.

1.2 Data set

| 1 | General | Description |
|----|---------|-------------|
| 1. | General | Describtion |

| 1.1 | Model | Designation | or | Name | |
|-----|-------|-------------|----|------|--|
|-----|-------|-------------|----|------|--|

1.2 Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)

B3-20 D, 1.5 D ogive + 20 D circular cylinder D = body diameter; Ref. [1], [2]

body of revolution, general body for missiles

2. Model Geometry

2.2 Body Data (Detail Description of Body Geometry)

2.5 Fabrication Tolerances/Waviness

See Figure 1.1

Manufactured of steel, smooth surface

3. Wind Tunnel

3.1 Designation

3.2 Type of Tunnel

3.2.1 Continuous or Blowdown.
Indicate Minimum Run Time
if Applicable

3.2.2 Stagnation Pressure

3, 2, 3 Stagnation Temperature

3.3 Test Section

3.3.1 Shape of Test Section

3.3.2 Size of Test Section (Width, Height, Length)

1 x 1 Meter Transonic Wind Tunnel

Continuous, closed circuit

0.4 bar up to 1.6 bar

Ambient

Square

1 meter, 1meter, 3 meter

3.3.3 Type of Test Section Walls
Closed, Open, Slotted,
Perforated
Open Area Ratio (Give
Range if Variable)
Slot/Hole Geometry (e.g.,
30-Degree Slanted Holes)
Treatment of Side Wall
Boundary Layer
Full span models

**-16 - 1-1 ------

Half model testing

3.4 Flow Field (Empty Test Section)

- 3.4.1 Reference Static Pressure
- 3.4.2 Flow Angularity
- 3.4.3 Mach Number Distribution
- 3.4.4 Pressure Gradient
- 3.4.5 Turbulence/Noise Level
- 3.4.6 Side Wall Boundary Layer
- 3.5 Freestream Mach Number (or Velocity)
 - 3.5.1 Range
 - 3.5.2 Pressures Used to
 Determine Mach Number
 (e.g., Settling Chamber
 Total Pressure and Plenum
 Chamber Pressure)
 - 3.5.3 Accuracy of Mach Number Determination (Δ M)
 - 3.5.4 Maximum Mach Number Variation in x,y,z-Direction (Empty Tunnel; Specify at What Mach Number)

Maximum Variation of Flow Direction Maximum Mach Number Variation During a Run

3.6 Reynolds Number Range

- 3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)
- 3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization)
- 3.7 Temperature Range and Dewpoint.
 Can Temperature be Controlled?
- 3.8 Model Attitudes 3.8.1 Angle of Attack, Yaw, Roll

Perforated

6 %

30 degree slanted holes, four walls are perforated and boundary layer is influenced by plenum suction to adjust free stream conditions. In case of 2 D and half-model-testing solid end plates (\emptyset 0.57 m) are used.

Plenum pressure, calibrated against side wall static pressure and lancet-probe [7]

 $\Delta \alpha = \Delta \beta < \pm 0.05^{\circ}$ wedge probe calibration

See Chapter A 5 Fig. 5.4 and Ref. [5], [6], [7] (also see 3.5.4)

Low turbulence level (measurements are in progress) [14]

Low noise level $(\sqrt{n} \ F(n) < 0.001) \ [8]$

M_{coo} = 0.5 0.8 1.0 1.2

 δ (Pitot pressure = 0.999 p_0) = 8.0 7.4 6.7 6.5cm

Transonic $M_{\infty} = 0.5$ to 1.2, supersonic $M_{\infty} = 1.3$ to 2.0

Transonic range: settling chamber total pressure and plenum chamber pressure. Dependence between plenum pressure and free stream static pressure has been calibrated by lancet-probe and side-wall static pressure [7]

$$\Delta M_{\infty} = \pm 0.003$$

$$M_{\infty} = 0.5 \quad 0.8 \quad 1.0 \quad 1.2$$

 $\Delta M_{\infty} (x-direct.) \quad 0.005 \quad 0.003 \quad 0.006 \quad 0.015$
 $(z-direct.) \quad 0.003$

± 0.05°

 $\Delta M_{\infty} = \pm 0.001$

$$M_{00}$$
 0.5 1.0 2.0 Re $_{max}$ 1.7 · 10 7 1.8 · 10 7 1.2 · 10 7 Re $_{min}$ 0.27 · 10 7 0.42 · 10 7 0.5 · 10 7

T_o ≈ 305 K (ambient), no t_{Dewpoint} ≈ - 30° C

2-D and sheared wings: total $\alpha = 25^{\circ}(\pm 0.02^{\circ})$ half-models: total $\alpha = 25^{\circ}(\pm 0.02^{\circ})$ complete models: total $\alpha = 30^{\circ}(\pm 0.02^{\circ})$

* range can be extended by cranked stings

complete models: total yaw 15° (± 0.1°) total roll 360° (± 0.1°)

3.9 Organization Operating the Tunnel and Location of Tunnel

Deutsche Forschungs- und Versuchsanstalt für Luftund Raumfahrt E.V. Bunsenstraße 10 D-3400 Göttingen, Germany (FRG)

3.10 Who is to be Contacted for Additional Information

Dr.-Ing. W. Lorenz-Meyer Address see 3.9

3.11 Literature Concerning this Facility

Ref. [5] to [11]

4. Tests

4.1 Type of Tests

Force- and moment measurements, surface pressure distribution and base pressure measurements, oil flow pictures

4.3 Test Conditions

4.3.1 Angle of Attack

- 4° to 18° (force - measurements)
0° to 30° (pressure distribution measurements)

4.3.2 Mach Number

0.5 to 1.2

4.3.3 Dynamic Pressure

0.16 to 0.43 bar

4.3.4 Reynolds Number

 $Re_{D}^{=\frac{\pi}{4} \cdot 10^{5}}$ to 6.5 · 10⁵, based on body diameter $T_{O}^{=\frac{\pi}{4} \cdot 10^{5}}$

4.3.5 Stagnation Temperature

4.4 Transition

4.4.1 Free or Fixed

Free

4.4.2 Position of Free Transition Unknown

4.4.4 Were Checks Made to
Determine if Transition
Occurred at Trip Location?

No

4.5 Bending or Torsion Under Load

Unknown

4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes No

4.7 Areas and Lengths Used to Form Coefficients Area: Body crossection $S = \frac{\pi D^2}{4} = 15.9 \text{ cm}^2$

Length: Body diameter D = 45 mm

4.8 References on Tests

Ref. [1], [2]

4.9 Related Reports

Ref. [3], [4]

5. Instrumentation

5.1 Surface Pressure Measurements

5.1.3 Pressure Orifices on Components, Give Component and Orifice

Body, see Fig. 1.1

5.1.4 Geometry of Orifices

5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy Holes, 0.7 mm in diameter, 4.5 mm deep CEC differential pressure transducers plus scanivalves. Range: ± 5 psi and ± 10 psi Accuracy: ± 0.3 % FS Scanning rate: 4.5 sec/orifice

5.2 Force Measurements

5.2.1 Type and Location of Balance

Sting mounted internal three component strain gauge balance made in DFVLR/AVA, Germany (FRG), located in the middle of the body

| | 5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
|----|---|---|
| | 5.3 Boundary Layer and Flow-Field Measurements | No |
| | 5.4 Surface Flow Visualization | Yes |
| | 5.4.1 Indicate Method Used to Determine | |
| | - Streamline pattern | Oil-flow pictures (paint pictures), see Fig. 1.16 |
| | - Boundary-layer transition | |
| | 5.5 Skin Friction Measurements | No |
| 6. | Data | |
| | 6.1 Accuracy | |
| | 6.1.1 Pressure Coefficients | $\Deltac_p^{~\approx}$ 1% assuming worst possible combination of errors including an error of $\Delta M_{\infty}^{~=\pm}$ 0.002 |
| | | evaluated at max. c_p and $M_{\infty} = 0.76$ |
| | 6.1.2 Aerodynamic Coefficients | 0.5 % |
| | 6.1.4 Repeatability | Within 1 % |
| | 6.3 Data Presentation | |
| | 6.3.1 Aerodynamic Coefficients | ${ m C}_{ m N}(lpha)$, ${ m C}_{ m m}(lpha)$ and ${ m C}_{ m A}(lpha)$; Table 1.45, |
| | | Figures 1.4 to 1.6 |
| | 6.3.2 Surface Pressure Coefficients | $c_{\rm p}$ ($\frac{\rm x}{\rm D}$); Tables 1.1 to 1.44 and Figures 1.8 to 1.15 |
| | 6.3.3 Flow Conditions for | |
| | Aerodynamic coefficients data }Pressure data | Angle of attack-, Mach number - and Reynolds number range, see Chapter 4.3 |
| | 6.3.4 Boundary Layer and/or Wake Data | Base pressure $c_{\mbox{pB}}(\pmb{\alpha});$ Table 1.45 and Figure 1.7 |
| | 6.3.5 Flow Conditions for Boundary Layer and/or Wake Data | See Section 4.3 |
| | 6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base? | No |

| 7 | R | ef | e | re | en | c | es |
|---|---|----|---|----|----|---|----|
| | | | | | | | |

- [1] Hartmann, K. Aerodynamische Untersuchungen im transsonischen Geschwindigkeitsbereich. Teil I: Systematische Dreikomponentenmessungen. AVA-Report 67 A 38
- [2] Hartmann, K.

 Aerodynamische Untersuchungen im transsonischen Geschwindigkeitsbereich. Teil II: Systematische Druckverteilungsmessungen.

 AVA-Report 69 A 06
- [3] Esch, H.
 1) Untersuchungen an schlanken Rotationskörpern im Transschall. DFVLR-Report 1 ÜS F 69-1.
 2) Kraftmessungen an zylindrischen Rümpfen im Transschall. DFVLR-Report 1 ÜS F 70-3.
- [4] Gudmundson, S.E. Supersonic and transonic wind tunnel tests on a slender ogive-cylinder body single and in combination with cruciform wings and tails of different sizes.

 FFA-Report AU-772 (1972), Sweden
- [5] Ludwieg, H.
 Lorenz-Meyer, W.
 Schneider, W.
 Der Transsonische Windkanal der Aerodynamischen Versuchsanstalt Göttingen.
 Jahrbuch WGLR 1966 (1967) pp. 145-155
- [6] Hottner, Th. Der Transsonische Windkanal der Aerodynamischen Versuchsanstalt Göttingen (Zweite Ausbaustufe) Jahrbuch DGLR 1968 (1969) pp. 235-244
- [7] Lorenz-Meyer, W. Die Strahleigenschaften der Meßstrecke des Transsonischen Windkanals der AVA.

 DLR-FB 66-19 (1966)
- [8] Lorenz-Meyer, W. Test Facilities of the DFVLR in the Transonic and Hypersonic Speed-Range and Main Activities. DLR-FB 71-86 (1971)
- [9] Mackrodt, P.A. Windkanalkorrekturen bei Messungen an zweidimensionalen Profilen im Transsonischen Windkanal der Aerodynamischen Versuchsanstalt Göttingen. ZFW 19 (1971) pp. 449-454
- [10] Lorenz-Meyer, W. Kanalkorrekturen für den Transsonischen Windkanal der Aerodynamischen Versuchsanstalt Göttingen bei Messungen an dreidimensionalen Modellen.
 ZFW 19 (1971) pp. 454-461
- [11] Lorenz-Meyer, W. Der Transsonische Windkanal 1 m x 1 m der DFVLR-AVA.
 Ein Überblick über die Aktivitäten von 1963 1977 Festschrift zum 65. Geburtstag von Prof. Dr. H. Ludwieg, pp.4-1 ÷
 4-54, Göttingen 1977
- [12] Holst, H. Druckschwankungsmessungen im Transsonischen Windkanal der DFVLR-Grosche, F.R. AVA Göttingen. Binder, B. DFVLR-AVA-Report 251-75 A 17 (1975)
- [13] Meier, H.U. The Response of Turbulent Boundary Layers to Small Turbulence Levels in the External Free Stream.

 ICAS-Paper 76-05 (1976)
- [14] Heddergott, A. Einfluß der erhöhten Turbulenz der freien Anströmung auf die Druckund Kraftbeiwerte eines superkritischen Profils.

 DFVLR-AVA-Report 251-76 A 10 (1977)
- [15] Lorenz-Meyer, W. Beitrag zur Frage des Vorkörperwiderstands eines nicht angestellten Rotationskörpers mit unterschiedlichen Heckkonfigurationen. DFVLR-AVA-Report 251-74 A 27 (1974)

[16] Aulehla, F. Reynolds-Number Effects on Fore- and Aftbody Pressure Drag. Besigk, G. AGARD CP 150 No. 12(1974) Fore-and Aftbody Flow Field Interaction with Consideration of Reynolds [17] Aulehla, F. Number-Effects. Besigk, G. AGARD CP 208 No. II-F(1975) [18] Aulehla, F. Grenzen der Widerstandsbestimmung schlanker Körper in transsonischen Windkanälen. MBB-Report UFE 1315 (Ö) 1976 [19] Aulehla, F. Drag Measurement in Transonic Wind Tunnels. AGARD Speicialist's Meeting on Aircraft Performance Prediction Methods, Paris (1977), Paper No. 7

8. List of Symbols

| $^{\rm C}{}_{ m N}$ | normal - force coefficient, F_{n}/q_{∞} · S |
|--------------------------------|--|
| C _m | pitching - moment coefficient, $\mathrm{M/q}_{oldots}$ · S · D |
| $^{\mathrm{C}}{}_{\mathrm{A}}$ | axial - force coefficient, F_a/q_{∞} · S (includes base drag) |
| c _p | pressure coefficient, p - p_{∞}/q_{∞} |
| c _{pB} | base pressure coefficient, p $_{\rm B}$ - p $_{\infty}/q_{\infty}$; base pressure measured with a probe mounted on sting within the model 3.5 D from the base |
| D | body diameter, see Fig. 1.1 |
| Fa | axial - force, positiv against flow direction |
| F _n | normal - force |
| L | total body length, L = L _N + L _A , Fig. 1.1 |
| L _N | length of nose (ogive), see Fig. 1.1 |
| LA | afterbody length, see Fig. 1.1 |
| M | pitching moment, positive if increasing α , reference point at $\frac{x}{D}$ = 11.5 |
| M _∞ | free - stream Mach number |
| M_{loc} | local Mach number |
| p | local static pressure on the body surface |
| P _O | stagnation pressure |
| P _{co} | free - stream static pressure |
| P _B | base pressure |
| q _∞ | free - stream dynamic pressure, $\frac{1}{2} \rho_{\infty} V_{\infty}^{2}$ |
| ReD | free - stream Reynolds number based on body diameter, $\rho_{\infty} \cdot V_{\infty} \cdot D/\mu_{\infty}$ |
| S | reference area, π D ² /4 |
| v _∞ | free - stream velocity |
| x | axial distance from body nose, see Fig. 1.1 |
| α | angle of attack |
| δ | boundary layer thickness |
| Φ | polar angle, see Fig. 1.1 |
| μ_{∞} | free - stream dynamic viscosity of air |
| P ∞ | free - stream density of air |

Table 1.1 Experimental pressure coefficients, $\alpha = 0^{\circ}$

| 0,251 0,482 0,731 | 0 M _{co} = | | 90 Re _D = 5, | 180 2 • 10 ⁵ | 0 M | 15 | 90 | 180 | 0 | 15 | 90 | 180 | 0 | 15 | 90 | 180 |
|-------------------------|------------------------|--------|----------------------------|----------------------------|--------|--------|----------------------|--------|-------------------|--------|----------|--------|--------------------|--------|----------------------|--------|
| 0,482 | 0,366 | | Rep = 5, | 2-105 | M | | | | | 15 | 30 | 100 | U | ., | 20 | 160 |
| 0,482 | 0,103 | | | | - a | 0,80 R | e _D = 5,6 | 5.105 | M _{co} • | 0,90 | Rep = 5, | 9.105 | M _∞ = 0 | ,95 R | e _D = 6,0 | 105 |
| 0,482 | | 0,363 | 0,368 | 0,366 | 0.394 | 0.393 | 0,401 | 0,398 | 0,445 | 0,438 | 0,454 | 0,449 | 0,484 | 0,489 | 0,494 | 0,467 |
| | -0,080 | -0,080 | | 0,104 | -0.078 | -0.074 | 0,127 | 0,125 | 0,169 | 0,170 | -0.038 | 0.170 | 0,214 | 0,223 | 0,219 | 0,211 |
| 0.980 | -0.245 | -0.245 | | | -0,279 | -0.283 | | -0.281 | -0,280 | -0.289 | -0.282 | -0,042 | 0,013 | 0,017 | 0,009 | 0.002 |
| 1,239 | -0.282 | | | -0.284 | -0.337 | -0.332 | -0.335 | | -0,472 | -0.474 | -0,471 | -0,474 | -0,227 | -0,227 | -0,229 | |
| 1,500 | -0,265 | -0.261 | | -0,263 | -0,315 | -0.310 | | -0,307 | -0.523 | -0.521 | -0.522 | -0.521 | -0,485 | -0.486 | | -0,427 |
| 1,944 | -0.059 | -0.059 | | -0,059 | -0,060 | -0.065 | | -0,065 | -0.030 | -0.012 | -0.030 | -0.038 | -0.338 | -0.359 | | -0.338 |
| 2,444 | -0.022 | | | -0,027 | -0.025 | -0,025 | | -0,030 | -0,018 | -0.022 | -0,018 | -0.022 | 0.040 | 0.028 | 0.035 | 0.039 |
| 2,944 | -0,011 | -0,011 | | -0,011 | -0,016 | -0,011 | | -0,012 | -0,010 | -0,010 | -0,007 | -0.011 | 0,035 | 0,040 | 0.035 | 0.028 |
| 3,444 | -0,006 | | | -0.006 | -0.002 | -0,007 | -0,007 | -0,012 | -0,006 | -0,007 | -0,007 | -0,011 | 0,017 | 0,020 | 0,020 | 0,009 |
| 3.944 | -0,000 | | | -0,001 | -0.002 | -0.003 | -0,003 | -0,003 | -0,003 | -0,007 | 0.001 | -0,003 | 0,009 | 0.013 | 0,013 | 0,005 |
| 4,444 | -0.000 | | | -0.001 | -0.002 | -0.005 | -0.003 | | -0,003 | -0,003 | 0.001 | -0,003 | 0,006 | 0,006 | 0.009 | 0.005 |
| 5,444 | -0,000 | | | | 0,002 | -0,002 | | -0.003 | 0.001 | -0.003 | 0.001 | -0.003 | 0,006 | 0.006 | 0.005 | 0,032 |
| 5,944 | 0,005 | | | 0,005 | -0,002 | 0.002 | 0,002 | 0,002 | 0,001 | 0,001 | 0.001 | 0.005 | 0,006 | 0.006 | 3.005 | 0.002 |
| 6,144 | 0,005 | | | 0.005 | 0,002 | 0,002 | 0,002 | 0,002 | 0,001 | -0,003 | 0,001 | 0,001 | 0,002 | 0.006 | 0.005 | 0.205 |
| 6,944 | 0,005 | | | | 0,002 | 0,002 | 0,006 | 0.005 | 0,001 | 0,001 | 0,005 | 0,001 | 0,006 | 0,006 | 0.005 | 0.005 |
| 7.444 | 0,005 | 0.005 | | | 0,002 | 0,002 | 0,002 | 0,002 | 0.005 | 0,001 | 0,005 | 0.001 | 0,006 | 0.006 | 0,005 | 0,002 |
| 7.944 | 0.005 | | | | 0,002 | 0,005 | 0,002 | 0,002 | 0,005 | 0,001 | 0.005 | 0,005 | 0,005 | 0,006 | 0,005 | 0,005 |
| 8,944 | 0.005 | | | | 0,002 | 0.002 | 0,006 | 0.002 | 0,001 | 0.001 | 0.005 | 0,001 | 0,005 | 0,006 | 0.005 | 0,013 |
| 9,144 | 0.005 | | | -0,001 | 0,002 | 0.002 | -0.003 | -0,003 | 0,001 | 0.001 | -0,003 | -0.007 | 0.003 | 0.006 | -0.005 | 0,002 |
| 9,944 | 0,005 | | 5 0,005 | | 0,002 | 0,002 | 0.002 | 0,002 | 0.001 | 0.001 | 0.005 | 0,001 | 0,002 | 0.002 | 0.002 | 0,002 |
| 10,444 | 0.005 | | | | 0.005 | 0.006 | 0,003 | 0,001 | 0.005 | 0.001 | 0.001 | 0.001 | 0,005 | 0.006 | 0.003 | 0,000 |
| 10,944 | 0,005 | 0.005 | 0.005 | | 0.007 | 0,006 | 0,004 | 0,004 | 0,005 | 0,001 | 0,003 | 0.003 | 0,005 | 0.006 | 0.003 | 0,005 |
| 11.444 | 0,005 | | | | 0.002 | 0,005 | 0,001 | 0,001 | 0,001 | 0,001 | -0,001 | 0,001 | 0,005 | 0,005 | -0.000 | 0,001 |
| 11,944 | 0.005 | | | | 0,002 | 0.002 | 0,001 | 0,001 | 0,001 | 0,001 | 0.001 | 0.001 | 0,002 | 0,002 | -0,000 | 0,001 |
| 12,944 | 0.005 | | | | 0,007 | 0.006 | 0.004 | 0,004 | 0.005 | 0.001 | 0.003 | -0.003 | 0,002 | 0,002 | 0.001 | 0.001 |
| 13,444 | 0.005 | | | | 0.002 | 0,002 | 0.001 | 0.001 | 0,001 | 0.001 | 0.001 | -0,001 | 0,002 | 0,002 | 0,003 | 0,00 |
| 13.944 | 0,005 | 0,005 | 0,002 | 0,004 | 0,002 | 0,002 | 0,001 | 0,001 | 0,001 | 0,001 | -0,001 | -0,001 | 0.002 | 0.002 | 0,001 | 0.001 |
| 14,444 | 0,037 | 0,037 | 7 0,002 | | 0.033 | 0,033 | 0,001 | 0.003 | 0.029 | 0,029 | -0,001 | -0.000 | 0,028 | 0,028 | 0.001 | 0.001 |
| 14,944 | 0,005 | | | | 0.002 | 0.002 | 0,001 | 0,004 | 0.001 | 0,001 | -0,001 | 0,001 | 0,002 | 0,002 | 0,001 | 0.001 |
| 15,444 | 0,005 | | | | 0,002 | 0,002 | 0,004 | 0,004 | 0,001 | 0,001 | 0,001 | 0,001 | 0,002 | 0,002 | 0,001 | 0,001 |
| 15,944 | -0,000 | | | | 0.002 | 0,002 | 0,004 | 0.004 | -0,001 | 0.001 | 0.001 | 0,001 | 0,002 | 0.002 | 0,001 | 0,001 |
| 16,944 | 0,005 | | | | 0,002 | 0,006 | 0.011 | 0.011 | 0,001 | 0.001 | 0,007 | 0.007 | 0,002 | 0.002 | 0.009 | 0,011 |
| 17,444 | -0,000 | | | | 0,002 | 0.002 | 0.004 | 0.004 | 0,001 | 0.001 | -0,001 | -0,007 | 0.002 | 0,002 | 0,007 | 0,007 |
| 17,944 | 0,005 | 0,016 | 6 0,002 | | 0,002 | 0,002 | 0.002 | 0.004 | 0.001 | 0.001 | -0.001 | 0.001 | 0.002 | 0.002 | -0.000 | 0,001 |
| 18.444 | -0,000 | -0,000 | 0,001 | -0,001 | 0,002 | 0,002 | 0,002 | 0,002 | -0,003 | -0,002 | -0.003 | -0.001 | -0.002 | -0.002 | | -0.002 |
| 18,944 | -0,000 | | | -0,001 | 0,002 | 0,002 | 0.002 | 0,002 | -0,003 | -0,002 | -0,003 | -0,003 | -0,002 | -0.002 | | -0,001 |
| 19.444 | -0,000 | | | -0,001 | -0,002 | 0,002 | 0,002 | 0,002 | -0,003 | -0,002 | -0,003 | -0,003 | -0,002 | -0.002 | -0.002 | -0.001 |
| 19.944 | -0,006 | | | -0,004 | -0.002 | -0,002 | -0,001 | | -0,006 | -0,006 | -0,003 | -0,003 | -0,002 | -0,002 | -0,004 | -0,006 |
| 20,444 | -0.011 | | | 3-0,012 | -0.007 | -0,007 | -0,007 | | -0,010 | -0,010 | -0,011 | -0,009 | -0,009 | -0,009 | -0,010 | -0,003 |
| 20,944 | | -0.02 | | -0,077 | -0,078 | -0,020 | -0.021 | -0,021 | -0,026 -0,088 | -0.026 | -0,025 | -0,027 | -0.024 | -0,024 | -0,025 | -0.025 |

Table 1.2 Experimental pressure coefficients , α = 0°

| | | | | | | | Polar | angle, | b, deg. | | | | | | | |
|--|--|--|--|--|--|--|---|--|--|---|--|--|--|---|---|---|
| Coordinates | 0 | 15 | 90 | 180 | 0 | 15 | 90 | 180 | 0 | 15 | 90 | 180 | 0 | 15 | 90 | 180 |
| | М _{со} - | 1,00 R | D - 6,1 | ·10 ⁵ | M ₀₀ = 1 | ,05 Re | D = 6,2 | ·10 ⁵ | М | 1,10 R | e _D = 6,2 | ·10 ⁵ | M 1 | .20 Re | D = 6.3. | 105 |
| 0,251 0,492 0,751 0,751 0,751 1,248 1,244 2,544 3,544 4,944 5,544 4,944 5,544 4,944 5,544 4,944 10,944 11,44 11,44 | 0,532 0,267 0,267 0,267 -0,415 -0,415 -0,415 -0,175 -0,185 -0,062 0,054 0,054 0,054 0,054 0,054 0,054 0,055 | 0.5799 0.779 0.076 0.157 -0.157 -0.157 -0.157 -0.1157 -0.1065 -0.065 0.052 | 0,540 0,274 0,077 -0,159 -0,145 -0,193 -0,19 | 0,535,000,000,000,000,000,000,000,000,00 | -0,118 -0,057 -0,026 -0,040 -0,053 -0,064 -0,070 -0,081 -0,081 | -0, 269 -0, 251 -0, 122 -0, 064 -0, 030 -0, 012 -0, 030 -0, 047 -0, 060 -0, 067 -0, 068 -0, 06 | -0,274 -0,232 -0,132 -0,132 -0,054 -0,030 -0,047 -0,061 -0,064 -0,054 | -0.345 -0.225 -0.119 -0.225 -0.041 -0.044 -0.047 -0.057 -0.058 -0.075 -0 | 0,609 0,356 0,167 -0,041 -0,223 -0,100 -0,110 -0,058 -0,018 -0,018 -0,018 -0,021 -0,02 | 0,613 0,363 0,163 0,173 0,220 0,220 0,203 0,203 0,025 | 0,615 0,359 0,156 -0,045 -0,045 -0,024 -0,011 -0,011 -0,011 -0,012 -0,012 -0,013 -0,012 -0,013 -0,01 | 0,615 0,556 0,163 -0,048 -0,228 -0,029 -0,029 -0,029 -0,01 | -0,175 -0,175 -0,075 -0,075 -0,019 -0,019 -0,019 -0,002 -0,003 -0 | 0.645 0.396 0.203 | 0.652 0.395 0.200 0.142 0.142 0.167 0.167 0.078 0.0167 0.078 0.0167 | 0,64 0,79 0,20 0,20 0,10 0,16 0,16 0,16 0,16 0,16 0,16 0,1 |

Table 1.3 Experimental pressure coefficients c_p for α = 5.07°, M_{∞} = 0.7 and Re_D = 5.2 · 10⁵

| oordinates | | | | | | Polar ar | igle, φ, | deg. | | | | | |
|------------|--------|--------|--------|--------|---------|----------|------------------|--------|--------|--------|--------|--------|-------|
| ×/0 | 0 | 19 | 10 | 45 | 60 | 79 | •0 | 105 | 120 | 139 | 150 | 165 | 180 |
| 0.251 | 0.491 | 0.490 | 0.477 | 0.456 | 0.409 | 0.379 | 0.542 | 0.311 | 9.278 | 0.260 | 0.244 | 0.231 | 0.23 |
| 0.482 | 0.232 | 0.230 | 0.212 | 0.193 | C.156 | 0.110 | 0.084 | 0.051 | 0.032 | 0.005 | -0.006 | -0.011 | -0.02 |
| 0.731 | 0.032 | 0.026 | 0.010 | -0.011 | -0.043 | -0.075 | -0.102 | -0.133 | -0.149 | -0.170 | -0.160 | -0.120 | -0.1 |
| C.983 | -0.153 | -C.159 | -0.183 | -0.197 | -0.218 | -0.245 | -0.267 | -0.237 | -0.303 | -0.310 | -0.324 | -0.323 | -0.32 |
| 1.230 | -0.234 | -0.228 | -0.249 | -0.250 | -C.266 | -0.28P | -0.299 | -0.313 | -0.323 | -0.329 | -0.324 | -0.323 | -0.37 |
| 1.500 | -0.233 | -0.239 | -0.249 | -0.255 | -0.266 | -0.277 | -0.278 | -0.27 | -0.282 | -0.281 | -0.276 | -0.270 | -0.2 |
| 8.744 | -0.348 | -0.048 | -0.058 | -0.064 | -0.069 | -0.080 | -0.050 | -0.03 | -0.075 | -0.069 | -0.064 | -0.050 | -0.0 |
| 2.444 | -0.016 | -0.016 | -0.021 | -0.027 | -0.037 | -0.043 | -0.043 | -0.048 | -0.039 | -0.732 | -0.027 | -0.027 | -0.0 |
| 2.944 | -0.000 | -0.000 | -0.011 | -0.016 | -0.027 | -0.032 | -0.082 | -0.032 | -0.021 | -0.021 | -0.016 | -0.011 | -0.0 |
| 3.444 | -0.000 | -0.000 | -0.009 | -0.011 | -0.022 | -0.027 | -0.027 | -0.021 | -0.022 | -0.014 | -0.018 | -0.005 | -0.0 |
| 3.944 | 0.009 | 0.005 | -0.000 | -0.006 | -0.016 | -0.C22 | -0.028 | -0.028 | -0.016 | -0.011 | -0.006 | -0.000 | -0.0 |
| 4.444 | 0.010 | 0.009 | -0.000 | -0.004 | -0.014 | -0.022 | -0.022 | -0.021 | -0.011 | -0.011 | -0.005 | -0.600 | -6.0 |
| 4.944 | 0.010 | 0.009 | -0.000 | -0.000 | -0.016 | -0.028 | -0.022 | -0.021 | -0.011 | -0.006 | -0.006 | -0.000 | 0.0 |
| 5.444 | 0.010 | 0.010 | 0.005 | -0.000 | -0.011 | -0.C16 | 0.028 | -0.016 | -0.011 | -0.306 | -0.000 | -0.000 | 0.0 |
| 5.544 | 0.013 | 0.017 | 0.009 | -0.000 | -0.011 | -0.015 | -0.C16 | -0.014 | -0.011 | -0.006 | -0.000 | 0.005 | 0.0 |
| 6.444 | 6.310 | 0.015 | 0.005 | -0.000 | -0.011 | -0.016 | -0.014 | -0.014 | -G.006 | -0.004 | -0.000 | -0.900 | 0.0 |
| 0.944 | 0.016 | 0.016 | 0.005 | -0.000 | -0.004 | -0.011 | -0.011 | -0.011 | -0.008 | -0.000 | -0.000 | 0.005 | 0.0 |
| 7.444 | 0.016 | 0.010 | 0.005 | -0.000 | -0.011 | -0.011 | -0.011 | -0.011 | -0.006 | -0.006 | -0.000 | -6.000 | 0-0 |
| 7.944 | 0.016 | 0.014 | 0.005 | 0.005 | -0.000 | -0,011 | -0.011 | -0.011 | -0.003 | -0.000 | -0.000 | -0.000 | 0.0 |
| 0.444 | 9.016 | 0.016 | 0.005 | -0.000 | -0.006 | -0.011 | -0.011 | -0.011 | -0.004 | +0.000 | -0.000 | -0.000 | 0.0 |
| 5.944 | 0.016 | 0.016 | 0.003 | -0.000 | -0.004 | -0.011 | -0.011 | -0.018 | -0.000 | -0.000 | -0.000 | -0.000 | 0.0 |
| 9.444 | 0.016 | 0.010 | 0.005 | -0.000 | -0.011 | -0.016 | -0.022 | -0.016 | -0.005 | -0.006 | -0.005 | ~0.006 | -0.0 |
| 9.944 | 0.010 | 0.010 | 0.009 | -0.000 | -0.006 | -0.011 | -0.011 | -0.011 | -0.000 | -0.000 | -0.000 | -0.000 | 0.0 |
| 10.444 | 0.016 | 0.016 | 0.010 | 0.002 | -0.006 | -0.00 | -0.012 | -0.006 | -9.003 | -0.003 | -0.003 | C-035 | 0.0 |
| 10.944 | 0.016 | 0.016 | 0.010 | O.COZ | -0.003 | -0.009 | -0.009 | -0.0:4 | -0.003 | -0.003 | -0.001 | 0.002 | 0.0 |
| 11.444 | 0.010 | 0.016 | 0.010 | -0.001 | -0.000 | -0.011 | -0.015 | -0.009 | -0.006 | -0.003 | -5.003 | -B.C03 | 2.0 |
| 12.544 | 0.014 | 0.010 | 0.005 | -0.001 | -0.009 | -0.011 | -0.014 | -0.009 | -0.003 | -0.003 | -0.003 | -0.003 | 0.0 |
| 12.444 | 6.016 | 0.010 | 0.005 | -0.001 | -0.000 | -0.011 | -0.012 | -0.008 | -0.003 | -0.003 | -0.001 | -0.001 | 0.0 |
| 12.044 | 6.016 | 0.016 | 0.010 | 0.003 | -C.006 | -0.009 | -0.009 | -0.004 | -0.003 | -0.003 | -0.001 | 0.002 | 0.0 |
| 15.444 | 0.016 | 0.016 | 0.005 | -0.001 | -0.00\$ | -0.012 | -0.012 | -0.006 | -0.003 | -0.203 | -0.003 | -0.001 | 0.0 |
| 13.944 | 0.310 | 0.021 | 0.005 | -0.001 | -0.009 | -0.009 | -0.012 | -0.000 | -0.003 | -0.003 | -0.003 | -0.001 | 0.0 |
| 14.444 | 0.037 | 0.049 | 0.037 | -0.001 | -0.000 | -0.000 | -0.022 | -0.004 | -0.003 | -0.003 | -0.003 | 0.001 | 0.0 |
| 14.944 | C-018 | 0.016 | 0.010 | -0.001 | -0.009 | -0.009 | +0.033 | -0.006 | -0.003 | -0.003 | -0.003 | 0.002 | 0.0 |
| 15,444 | 5.016 | 0.013 | 0.008 | -0.001 | -0.006 | -0.009 | -0.012 | -0.000 | -0.003 | -0.003 | -0.001 | 0.002 | C.0 |
| 15.944 | 0.016 | 0.010 | 0.005 | -0.001 | -0.005 | 0.003 | -0.012 | -0-006 | -0.003 | -0.003 | -0.003 | -0.001 | 0.0 |
| 16.944 | 0.010 | 0.016 | 0.005 | 0.013 | 0.007 | 0.002 | 0.002 | 0.007 | C.010 | 0.007 | 0.010 | 0.013 | 0.0 |
| 17.444 | | | | | | | -0.001 | 6.002 | 0.003 | 0.009 | 0.005 | 0.007 | 0.0 |
| | 0.015 | 0.010 | 0.005 | -0.001 | -0.009 | -0.011 | -0.012 | -0.009 | -0.006 | -0.006 | -0.003 | -0.003 | 0.0 |
| 17,554 | 0.010 | 0.010 | 0.005 | -0.006 | -0.011 | -0.011 | -0.022 | -0.009 | -0.003 | -0.006 | -0.003 | -0.003 | 0.0 |
| 18.944 | 0.005 | 9.005 | -0.000 | -0.004 | -0.011 | -0.014 | -0.020 | -0.009 | -0,509 | -0.009 | -0.006 | -0.036 | -0.0 |
| 10.144 | 0.005 | 0.009 | -0.000 | -0.004 | -0.011 | -0.014 | -0.026 -0.017 | -0.011 | -0.009 | -0.009 | -0.709 | -0.006 | -0.0 |
| 19.744 | 0.035 | 0.005 | -0.000 | | | | | | -0.009 | | -0,009 | -0.009 | -0.0 |
| 23.444 | | | | -0.009 | -0.014 | -0.017 | -0.020 | -0.014 | -0.014 | -0.014 | -0.011 | -0.009 | -0.0 |
| 20.944 | -0.022 | -0.000 | -0.004 | -0.014 | -0.022 | -0.025 | -0.028 | -0.023 | -0.022 | -0.515 | -0.019 | -0.017 | -0.0 |
| 21.444 | -0.022 | -0.016 | -0.021 | -0.030 | -0.038 | -0.033 | -0.044 | -9.041 | -0.038 | -0.035 | -0.035 | -0.036 | -0.0 |

Table 1.4 Experimental pressure coefficients c_p for α = 5.08°, M_{∞} = 0.8 and Re_D = 5.6 · 10⁵

| | | | | | | | | | w | | | , | |
|-------------|--------|--------|--------|--------|--------|---------|------------------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar a | angle, \$ | deg. | | | - CANA | | |
| 1/0 | • | 15 | 30 | 49 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 9.251 | 0.528 | 0.520 | 0.511 | 0.484 | 0.437 | 0.412 | 0.376 | 0.344 | 0.315 | 0.294 | 0.277 | 0.263 | 0.26 |
| 0.462 | 0.250 | 0.251 | 0.235 | 0.212 | 0.178 | 0.145 | 0.127 | 0.071 | 0.046 | 0.024 | 0.015 | 0.007 | 0.00 |
| 0.731 | 0.040 | 0.033 | 0.020 | -0.007 | -0.039 | -0.069 | -0.796 | -0.127 | -0.150 | -0.171 | -0.160 | -0.180 | -0.1 |
| 0.950 | -0.177 | -0.185 | -0.202 | -0.220 | -0.245 | -0.270 | -0.713 | -0.323 | -0.342 | -0.358 | -0.372 | -0.372 | -C.3 |
| 1.238 | -0.271 | -0.274 | -0.295 | -0.300 | -0.317 | -0.337 | -0.351 | -0.367 | -0.373 | -0.375 | -0.376 | -0.372 | -0.3 |
| 1.500 | -0.288 | -0.292 | -0.300 | -0.305 | -0.312 | -0.323 | -0.324 | -0.331 | -0.324 | -0.318 | -0.314 | -0.305 | -0.3 |
| 1.944 | -0.052 | -0.056 | -0.060 | -0.069 | -0.079 | -0.083 | -0.087 | -0.537 | -0.078 | -C.073 | -0.069 | -0.060 | -0.0 |
| 2.444 | -0.016 | -0.020 | -0.024 | -0.034 | -0.043 | -0.047 | -0.051 | -0.351 | -0.043 | -0.038 | -0.029 | -0.025 | -0.0 |
| 2.744 | -0.002 | -0.007 | -0.011 | -0.020 | -0.029 | -0.034 | -0.038 | -0.038 | -0.029 | -0.020 | -0.016 | -0.011 | -0.00 |
| 3.444 | 0.002 | -0.002 | -0.007 | -0.016 | -0.025 | -0.029 | -0.029 | -0.029 | -0.025 | -0.016 | -0.011 | -0.007 | -0.00 |
| 3.744 | 0.007 | 0.002 | -0.002 | -0.011 | -0.016 | -0.025 | -0.025 | -0.025 | -0.020 | -0.011 | -0.067 | -0.002 | 0.0 |
| 4.444 | 0.037 | 0.002 | -0.002 | -0.007 | -0.016 | -0-020 | -0.025 | -0.020 | -0.016 | -2.011 | -0.007 | -0.002 | 0.00 |
| 6.944 | 9.007 | 0.007 | 0.002 | -0.007 | -0.016 | -0.020 | -0.025 | -0.020 | -0.015 | -0.011 | -0.007 | -0.002 | 0.0 |
| 2.444 | 0.011 | 0.007 | 0.002 | -0.007 | -0.016 | -0.020 | -0.020 | -0.020 | -0.011 | -0.007 | -0.007 | -0.002 | 0.0 |
| 5.944 | 0.011 | 0.007 | 0.002 | -0.002 | -0.011 | -0.016 | -0.020 | -0.016 | -0.011 | -0.007 | -0.002 | -0.002 | 0.0 |
| 6.444 | 0.011 | 0.007 | 0.002 | -0.002 | -0.011 | -0.020 | -0.020 | -0.016 | -0.011 | -0.007 | -0.007 | -0.002 | 0.0 |
| 6.744 | 0.015 | 9.011 | 0.007 | -G.002 | -0.007 | -0.016 | -0.016 | -0.011 | -0.007 | -0.007 | -0.002 | -0.002 | 0.0 |
| 7.444 | 0.015 | 0.011 | 0.007 | -0.002 | -0.011 | -0.016 | -0.016 | -0.016 | -0.007 | -0.307 | -0.007 | -0.002 | 0.0 |
| 7.944 | 0.015 | 0.011 | 0.007 | 0.002 | -0.007 | -0.015 | -0.016 | -0.011 | -0.037 | -0.002 | -0.002 | 0.002 | 0.0 |
| 9.444 | 0.015 | 0.011 | 0.007 | -0.002 | -0.011 | -0.016 | -0.016 | -0.011 | -0.007 | -0.007 | -0.037 | -0.002 | C.0 |
| 6.966 | 0.015 | 0.011 | 0.007 | -0.002 | -0.011 | -0.016 | -0.016 | -0.011 | -0.007 | -0.002 | -0.007 | -0.002 | 0. |
| 4.544 | 0.015 | 0.011 | 0.002 | -0.007 | -0.016 | -0.023 | -0.025 | -0.020 | -0.011 | -0.007 | -0.011 | -0.01: | -0.0 |
| 9.944 | 0.011 | 0.011 | 0.002 | -0.002 | -0.011 | -0.016 | -0.015 | -0.011 | -0.007 | -0.007 | -0.007 | -0.002 | 0.0 |
| 10.444 | 0.015 | 0.015 | 0.007 | -0.000 | -0.008 | -0.012 | -0.014 | -0.009 | -0.005 | -0.003 | -0.005 | -0.000 | 0.0 |
| 10.944 | 0.015 | 0.015 | 0.007 | 0.002 | -0.005 | -0.C10 | -0.021 | -0.007 | -0.005 | -0.003 | -0.003 | C.002 | 0.0 |
| 11.444 | 0.015 | 0.015 | 0.007 | -0.000 | -0.008 | -0.012 | -0.014 | -0.009 | -0.007 | -0.005 | -0.005 | -0.003 | 0.0 |
| 11.944 | 0.015 | 0.011 | 0.007 | -0.003 | -0.010 | -0.014 | -0.016 | -0.039 | -0.005 | -0.005 | -0.005 | -0.003 | -0.0 |
| 12.444 | 0.013 | 0.011 | 0.007 | -0.003 | -0.010 | -0.012 | -0.014 | -0.009 | -0.003 | -0.005 | -0.003 | -0.000 | 0.0 |
| 13.964 | 0.023 | 0.015 | 0.007 | -0.000 | -0.008 | -0.010 | -0.012 | -0.007 | -0.005 | -0.903 | -0.003 | 0.002 | 0.0 |
| 13.444 | 0.015 | 0.011 | 0.007 | -0.003 | -0.008 | -0.012 | -0.014 | -0.009 | -0.005 | -0.005 | -0.005 | -0.003 | 0.0 |
| 15.944 | 0.015 | 0.015 | 9.007 | -0.000 | -0.008 | -0.012 | -0.012 | -0.007 | -0.005 | -0.005 | -0.003 | -0.003 | 0.0 |
| 14.444 | 0.034 | 0.033 | 0.033 | -0.001 | -0.008 | -0.012 | -0.012 | -0.007 | -0.005 | -0.005 | -0.004 | -0.002 | 0.0 |
| 14.944 | 0.015 | 0.015 | 0.007 | -0.001 | -0.007 | -0.012 | -0.012 | -0.007 | -0.005 | -0.005 | -0.005 | -0.000 | 0.0 |
| 15.444 | 0.015 | 0.013 | 0.007 | -0.001 | -0.007 | -0.010 | -0.012 | -0.007 | -6.005 | -0.003 | -0.003 | -0.000 | 0.0 |
| 15.754 | 0.015 | 0.011 | 0.006 | -0.001 | -0.007 | -0.012 | -0.010 | -0.017 | -0.005 | -0.003 | -0.003 | -0.000 | 0.0 |
| 16.444 | 0.015 | 0.011 | 0.006 | 0.011 | 0.006 | 0.004 | 0.004 | 0.006 | 0.003 | 0.006 | 0.008 | O.C.1 | 0.0 |
| \$6.944 | 0.015 | 0.015 | 0.006 | 0.007 | 0.004 | 0.002 | -0.001 | 0.004 | 0.004 | 0.304 | 0.066 | 0.009 | 0.0 |
| 17.444 | 0.015 | 0.011 | 0.006 | -0.001 | -0.007 | -0.012 | -0.512 | -0.037 | -0.005 | -0.003 | -0.003 | -0.000 | 0.0 |
| \$7.744 | 0.015 | 0.011 | 0.036 | -0.001 | -0.007 | -0.010 | -0.012 | -0.005 | -0.005 | -0.003 | -0.003 | -0.000 | 0.0 |
| 18.444 | 0.015 | 0.011 | 0.006 | -0.003 | -0.010 | -0.012 | -0.012 | -0.007 | -0.005 | -0.005 | -0.005 | -0.003 | 0.0 |
| 18.944 | 0.011 | 0.011 | 0.006 | -0.003 | -0.010 | -0.012 | -0.014 | -0.007 | -0.007 | -9.005 | -0.005 | -0.005 | -0.0 |
| 19.444 | 0.011 | 0.006 | 0.006 | -0.003 | -0.010 | -0.012 | -0.014 | -0.007 | -0.007 | -0.005 | -0.005 | -0.005 | -0.0 |
| 19.944 | 0.011 | 0.007 | 0.002 | -0.005 | -0.012 | -0.015 | -0.016 | -0.012 | -0.010 | -0.009 | -0.001 | -0.007 | -0.0 |
| 20.444 | 0.006 | 0.002 | -0.002 | -0.012 | -0.019 | -0.021 | -0.021 | -0.019 | -0.016 | -0.016 | -0.014 | -0.014 | -0.0 |
| 20.944 | -0.011 | -0.011 | -0.016 | -0.025 | -0.034 | -0.037 | -0.039 | -0.014 | -0.034 | -0.032 | -0.032 | -C.032 | -0.0 |
| 21.444 | -0.083 | -0.083 | -0.087 | -0.095 | -0.104 | -0-109 | -0.111 | -0-107 | -0.104 | -0.102 | -0.101 | -0.100 | -0.0 |

Table 1.5 Experimental pressure coefficients c_p for α = 5.09°, M_{∞} = 0.9 and Re_D = 5.9 · 10⁵

| Coordinates | | | | | | Polar an | gle, Φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|----------|---------|--------|--------|--------|--------|--------|-------|
| K/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 1.30 |
| 0.251 | 0.577 | 0.567 | 0.563 | 0.531 | 0.490 | 0.464 | 0.425 | 0.401 | 0.370 | 0.349 | 0.333 | 0.322 | 0.321 |
| 0.482 | 0.304 | 0.298 | 0.284 | 0.255 | 0.222 | 0.193 | 0.152 | 0.125 | 0.096 | 0.374 | 0.063 | 0.054 | 0.04 |
| 0.731 | 0.079 | 0.066 | 0.055 | 0.029 | -0.002 | -0.030 | -0.065 | -0.065 | -0.112 | -0.132 | -0.139 | -0.139 | -0.14 |
| 0.980 | -0.167 | -0.179 | -0.193 | -0.217 | -0.245 | -0.269 | -0.299 | -0.319 | -0.342 | -0.359 | -0.372 | -0.377 | -0.38 |
| 1.238 | -0.381 | -0.386 | -0.399 | -0.419 | -0.444 | -0.468 | -0.494 | -0.514 | -0.531 | -0.542 | -0.551 | -0.553 | -0.55 |
| 1.500 | -0.441 | -0.448 | -0.458 | -0.474 | -C.487 | -0.519 | -0.537 | -0.561 | -0.570 | -0.581 | -0.586 | -0.583 | -0.58 |
| 1.944 | -0.030 | -0.039 | -0.034 | -0.057 | -0.065 | -0.057 | -0.041 | -0.049 | -0.050 | -0.034 | -0.022 | -0.018 | -0.02 |
| 2.444 | -0.010 | -0.014 | -0.018 | -0.030 | -0.038 | -0.042 | -0.045 | -0.038 | -0.038 | -0-026 | -0.018 | -0.010 | -0.01 |
| 2.944 | -0.003 | -0.006 | -0.006 | -0.018 | -0.026 | -0.030 | -0.034 | -0.034 | -0.026 | -0.018 | -0.010 | -0.006 | -0.00 |
| 3.444 | 0.001 | -0.003 | -0.006 | -0.018 | -0.022 | -0.030 | -0.030 | -0.026 | -0.022 | -0.014 | -0.006 | -0.002 | -0.03 |
| 3.944 | 0.005 | 100.0 | -0.002 | -0.010 | -0.018 | -0.022 | -0.026 | -0.022 | -0.018 | -0.010 | -0.006 | 0.001 | 0.00 |
| 4.444 | 0.009 | 0.005 | 0.001 | -0.010 | -0.018 | -0.022 | -0.026 | -0.022 | -0.018 | -0.010 | -0.006 | -0.002 | 0.00 |
| 4.944 | 0.309 | 0.005 | 0.001 | -0.010 | -0.018 | -0.022 | -0.026 | -0.022 | -0.014 | -0.010 | -0.006 | 0.001 | -0.00 |
| 5.444 | 0.013 | 0.005 | 0.001 | -0.010 | -0.014 | -0.022 | -0.022 | -0.018 | -0.014 | -0.010 | -0.006 | 0.001 | 0.00 |
| 5.944 | 0.013 | 0.009 | 0.005 | -0.006 | -0.014 | -0.018 | -0.022 | -0.018 | -0.014 | -0.010 | -0.002 | 0.001 | 0.00 |
| 6.444 | 0.013 | 0.009 | 0.005 | -0.006 | -0.014 | -0.018 | -0.022 | -0.014 | -0.010 | -0.006 | -0.006 | 0.001 | 0.00 |
| 6.944 | 0.017 | 0.019 | 0.005 | -0.003 | -0.010 | -0.014 | -0.018 | -0.014 | -0.006 | -0.006 | -0.002 | 0.001 | 0.00 |
| 7.444 | 0.013 | 0.009 | 0.005 | -0.006 | -0.010 | -0.014 | -0.018 | -0.014 | -0.010 | -0.006 | -0.006 | 0.901 | 0.00 |
| 7.944 | 0.013 | 0.013 | 0.009 | -0.003 | -0.010 | -0.014 | -0.018 | -0.010 | -0.006 | -0.006 | -0.002 | 0.001 | 0.00 |
| 8.444 | 0.013 | 0.009 | 0.005 | -0.003 | -0.010 | -0.014 | -0.018 | -0.014 | -0.006 | -0.006 | -0.006 | -0.002 | -0.00 |
| 8.744 | 0.013 | 0.009 | 0.005 | -0.006 | -0.010 | -0.014 | -0.018 | -0.014 | -0.006 | -0.006 | -0.006 | -0.002 | 0.00 |
| 9.444 | 0.013 | 0.009 | 0.001 | -0.010 | -0.018 | -0.022 | -0.026 | -0.022 | -0.014 | -9.010 | -0.010 | -0.010 | -0.00 |
| 9.944 | 0.013 | 0.009 | 0.001 | -0.007 | -0.014 | -0.014 | -0.018 | -0.014 | -0.010 | -0.006 | -0.006 | -0.002 | -0.00 |
| 10.444 | 0.017 | 0.013 | 0.005 | -0.003 | -0.009 | -0.013 | -0.015 | -0.011 | -0.007 | -0.005 | -0.005 | -0.003 | 0.00 |
| 10.944 | 0.017 | 0.013 | 0.009 | -0.001 | -0.009 | -0.C11 | -0.015 | -0.011 | -0.005 | -0.005 | -0.005 | -0.003 | 0.00 |
| 11.444 | 0.017 | 0.013 | 0.005 | -0.005 | -0.011 | -0.013 | -0.017 | -0.011 | -0.009 | -0.007 | -0.005 | -0.007 | -0.00 |
| 11.944 | 0.013 | 0.009 | 0.005 | -0.005 | -0.013 | -0.015 | -0.017 | -0.013 | -0.007 | -0.007 | -0.007 | -0.007 | -0.00 |
| 12.444 | 0.013 | 0.009 | 0.005 | -0.005 | -0.013 | -0.015 | -0.017 | -0.011 | -0.007 | -0.007 | -0.005 | -0.005 | 0.00 |
| 12.944 | 0.017 | 0.013 | 0.005 | -0.003 | -0.009 | -0.013 | -0.015 | -0.009 | -0.007 | -0.005 | -0.005 | -0.001 | 0.00 |
| 13.444 | 0.213 | 0.009 | 0.005 | -0.005 | -0.011 | -0.015 | -0.021 | -0.011 | -0.007 | -0.007 | -0.005 | -0.003 | 0.00 |
| 13.944 | 0.013 | 0.013 | 0.005 | -0.005 | -0.011 | -0.015 | -0.015 | -0.011 | -0.007 | -0.005 | -0.005 | -0.005 | 0.00 |
| 14.444 | 0.029 | 0.029 | 0.029 | -0.005 | -0.011 | -0.015 | -0.016 | -0.010 | -0.007 | -0.006 | -0.006 | -0.004 | 0.00 |
| 14.944 | 0.013 | 0.009 | 0.005 | -0.005 | -0.011 | -0.015 | -0.017 | -0.009 | -0.007 | -0.307 | -0.007 | -0.003 | 0.00 |
| 15.444 | 0.013 | 0.009 | 0.005 | -0.005 | -0.011 | -0.013 | -0.015 | -0.009 | -0.007 | -0.007 | -0.005 | -0.003 | 0.00 |
| 15.944 | 0.013 | 0.009 | 0.005 | -0.005 | -0.011 | -0.013 | -0.015 | -0.011 | -0.007 | -0.007 | -0.005 | -0.003 | 0.00 |
| 16.444 | 0.013 | 0.000 | 0.001 | 0.005 | 0.003 | -0.001 | -0.001 | 0.003 | 0.005 | 0.005 | 0.005 | 0.007 | 0.01 |
| 16.944 | 0.013 | 0.000 | 0.005 | 0.003 | -0.001 | -0.003 | -0.005 | -0.001 | 0.001 | 0.001 | 0.003 | 0.005 | 0.00 |
| 17.444 | 0.009 | 0.000 | 0.001 | -0.007 | -0.011 | -0.015 | -0.015 | -0.011 | -0.007 | -2.007 | -0.005 | -0.003 | -0.00 |
| 17.944 | 0.013 | 0.009 | 0.005 | -0.005 | -0.011 | -0.013 | -0.015 | -0.009 | -0.009 | -0.007 | -0.007 | -0.003 | -0.00 |
| 18.444 | 0.009 | 0.009 | 0.001 | -0.009 | -0.015 | -0.017 | -0.017 | -0.011 | -0.009 | -0.009 | -0.007 | -0.007 | -0.00 |
| 18.744 | 0.009 | 0.005 | 0.001 | -0.009 | -0.015 | -0.017 | -0.016 | -0.013 | -0.009 | -0.009 | -0.009 | -0.007 | -0.00 |
| 19.444 | 0.009 | 0.009 | 0.001 | -0.009 | -0.013 | -0.015 | -0.016 | -0.013 | -0.009 | -0.009 | -0.009 | -0.007 | -0.00 |
| 19.744 | 0.009 | 0.005 | 0.001 | 0.011 | -0.015 | -0.019 | -0.019 | -0.015 | -0.015 | -0.013 | -0.011 | -0.009 | -0.00 |
| 20.444 | 0.001 | 0.001 | -0.006 | -0.015 | -0.023 | -0.025 | -0.027 | -0.023 | -0.021 | -0.021 | -0.019 | -0.017 | -0.0 |
| 20.944 | -3.013 | -0.614 | -0.018 | -0.031 | -0.037 | -0.641 | -0.042 | -0.041 | -0.038 | -0.038 | -0.036 | -0.036 | -0.03 |
| 21.444 | -0.092 | -0.092 | -0.100 | -0.106 | -0.114 | -0.118 | -0.142 | -0.120 | -0.118 | -0.115 | -0.113 | -0.107 | -0.10 |

Table 1.6 Experimental pressure coefficients c_p for α = 5.18°, M_{∞} = 0.95 and Re_D = 6 · 10⁵

| oordinates | | | | | | Polar and | gle, φ, d | leg. | | | | | |
|------------|--------|--------|--------|--------|--------|-----------|-----------|--------|--------|--------|--------|--------|-------|
| 8/0 | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.613 | 0.612 | 0.600 | 0.579 | 0.543 | 0.504 | 0.451 | 0.440 | 0.411 | 0.391 | 0.377 | 0.363 | 0.36 |
| 0.482 | 0.346 | 0.344 | 0.327 | 0.305 | 0.273 | 0.237 | 0.195 | 0.1.6 | 0.142 | 0.119 | 0.111 | 0.098 | 0.09 |
| 0.731 | 0.123 | 0.118 | 0.103 | 0.079 | 0.048 | 0.017 | -0.020 | -0.0 5 | -0.061 | -0.080 | -0.083 | -0.091 | -0.0 |
| 0.980 | -0.117 | -0.124 | -0.143 | -0.157 | -0.184 | -0.213 | -0.249 | -0.2:1 | -0.239 | -0.302 | -0.313 | -0.320 | -0.3 |
| 1.238 | -0.328 | -0.328 | -0.346 | -0.361 | -0.389 | -0.413 | -0.445 | -0.454 | -0.474 | -0.488 | -0.495 | -0.502 | -0.49 |
| 1.500 | -0.439 | -0.413 | -0.424 | -0.442 | -0.467 | -0.487 | -0.512 | -0.520 | -0.517 | -0.543 | -0.547 | -0.549 | -0.5 |
| 1.944 | -0.298 | -0.302 | -0.309 | -0.324 | -0.344 | -0.358 | -0.350 | -0.372 | -0.370 | -0.358 | -0.347 | -0.334 | -0.3 |
| 2.444 | 0.028 | 0.002 | 0.017 | -0.002 | 0.020 | 0.017 | 0.017 | 0.013 | 0.024 | 0.024 | 0.028 | 0.033 | 0.0 |
| 2.744 | 0.044 | 0.047 | 0.030 | 0.033 | C.020 | 0.013 | -0.002 | 0.020 | 0.023 | 0-028 | 0.038 | 0.042 | 0.0 |
| 3.444 | 0.928 | 0.028 | 0.020 | 0.017 | 0.002 | -0.006 | -0.017 | 0.002 | 0.002 | 0.013 | 0.020 | 0.024 | 0.0 |
| 3.944 | 0.020 | 0.020 | 0.013 | 0.009 | -0.006 | -0.009 | -0.017 | -0.006 | -0.006 | 0.002 | 0-009 | 0.013 | 0.0 |
| 4.444 | 0.017 | 0.017 | 0.009 | C.002 | -0.009 | -0.013 | -0.020 | -0.013 | -0.006 | -0.002 | 0.005 | 0.009 | 0.0 |
| 4.944 | 0.013 | 0.013 | 0.009 | -0.002 | -0.009 | -0.017 | -0.020 | -0.013 | -0.003 | -0.002 | 0.002 | 0.005 | 0-0 |
| 5.444 | 0.017 | 0.013 | 0.006 | -0.002 | -0.009 | -0.017 | -0.020 | -0.013 | -0.007 | -0.002 | 0.003 | 0.006 | 0.0 |
| 5.944 | 0.017 | 0.013 | 0.009 | -0.002 | -0.009 | -0.013 | -0.017 | -0.013 | -0.009 | -0.006 | -0.002 | C.006 | 0.0 |
| 8-444 | 0.013 | 0.013 | 0.006 | -0.002 | -0.009 | -0.013 | -0.030 | -0.013 | -0.006 | -0-006 | -0.002 | 0.005 | C.C |
| 6.744 | 3.017 | 0.017 | 0.009 | 0.002 | -0.006 | -0.013 | -0.017 | -0.009 | -0.006 | -0.002 | -0.032 | 0.002 | 0.0 |
| 7.444 | 0.017 | 0.013 | 0.009 | -0.002 | -0.009 | -0.013 | -0.017 | -0.C:3 | -0.005 | -0.006 | -0.002 | 0.002 | 0.0 |
| 7.944 | 0.017 | 0.017 | 0.009 | 0.002 | -0.006 | -0.013 | -0.013 | -0.009 | -0.006 | -0.002 | -0.002 | 0.002 | 0.0 |
| 8.444 | 0.017 | 0.013 | 0.009 | -0.002 | -0.009 | -0.013 | -0.017 | -0.003 | -0.006 | -0.006 | -0.005 | -0.002 | 0.0 |
| 8.444 | 0.017 | 0.019 | 0.009 | -0.002 | -0.009 | -0.013 | -0.017 | -0.009 | -0.005 | -0.006 | -0.002 | 0.002 | 0.0 |
| 9.444 | 0.017 | 0.013 | 0.006 | -0.006 | -0.013 | -0.021 | -0.028 | -0.020 | -0.009 | -0.009 | -0.009 | -0.009 | -0.0 |
| 9.944 | 0.013 | 0.009 | 0.006 | -0.002 | -0.009 | -0.013 | -0.017 | -0.613 | -0.006 | -0.006 | -0.006 | -0.002 | 0.0 |
| 10.444 | 0.017 | 0.017 | 0.009 | 0.002 | -0.006 | -0.012 | -0.013 | -0.010 | -0.004 | -0.004 | -0.004 | -0.002 | 0.0 |
| 10.944 | 0.017 | 0.017 | 0.009 | 0.002 | -0.006 | -0.012 | -0.013 | -0.038 | -0.004 | -0.004 | -0.004 | -0.000 | 0.0 |
| 11.444 | 0.017 | 0.017 | 0.009 | -0.000 | -0.008 | -0.013 | -0.015 | -0.010 | -0.008 | -0.006 | -0.006 | -0.004 | -0.0 |
| 11.944 | 0.013 | 0.013 | 0.006 | -0.002 | -0.010 | -0.015 | -0.015 | -0.010 | -0.006 | -0.006 | -0.006 | -0.006 | -0.0 |
| 12.444 | 0.017 | 0.013 | 0.006 | -0.002 | -0.008 | -0.014 | -0.015 | -0.010 | -0.006 | -0.006 | -0.074 | -0.002 | 0.5 |
| 12.744 | 0.017 | 0.017 | 0.009 | -0.000 | -0.006 | -0.012 | -0.023 | -0.008 | -0.004 | -0.004 | -0.004 | -0.000 | 0.0 |
| 13.444 | 0.013 | 0.013 | 0.006 | -0.002 | -0.010 | -0.014 | -0.015 | -0.010 | -0.006 | -0.006 | -0.004 | -0.004 | 0.0 |
| 13.944 | 0.017 | 0.013 | 0.006 | -0.002 | -0.008 | -0.014 | -0.015 | -0.010 | -0.006 | -0.006 | -0.006 | -0.004 | 0.0 |
| 14.444 | 0.028 | 0.028 | 0.028 | -0.002 | -0.008 | -0.014 | -0.015 | -0.010 | -0.006 | -0.006 | -0.005 | -0.003 | 0.0 |
| 14.944 | 0.017 | 0.013 | 0.006 | -0.002 | -0.008 | -0.014 | -0.015 | -0.010 | -0.006 | -0.006 | -0.006 | -0.002 | 0.0 |
| 15.444 | 0.015 | 0.013 | 0.006 | -C.002 | -0.008 | -0.C14 | -0.013 | -0.012 | -0.006 | -0-006 | -0.004 | -0.002 | 0.0 |
| 15.944 | 0.013 | 0.013 | 0.006 | -0.002 | -0.008 | -0.014 | -0.013 | -0.010 | -0.006 | -0.006 | -0.005 | -0.004 | 0.0 |
| 16.444 | 0.013 | 0.009 | 0.006 | 0.007 | 0.003 | -0.000 | -0.000 | 0.001 | 0.005 | 0.005 | 0.005 | 0.007 | 0.0 |
| 16.944 | 0.013 | 0.013 | 0.006 | 0.005 | -0.000 | -O.CO4 | -0.004 | -0.002 | 0.001 | 0.001 | 0.003 | 0.003 | 0.0 |
| 17.444 | 0.009 | 0.009 | 0.002 | -0.004 | -0.010 | -0.015 | -0.015 | -0.010 | -0.006 | -0.008 | -0.006 | -C.004 | -0.0 |
| 17.944 | 0.013 | 0.009 | 0.006 | -0.004 | -0.010 | -0.015 | -0.015 | -0.010 | -0.003 | -0.006 | -0.006 | -0.004 | -0.0 |
| 18.444 | 0.009 | 0.009 | 0.002 | -0.006 | -0.014 | -0.017 | -0.017 | -0.012 | -0.010 | -0.008 | -0.008 | -0.006 | -0.0 |
| 18.944 | 0.009 | 0.009 | 0.002 | -0.006 | -0.012 | -0.015 | -0.015 | -0.012 | -0.008 | -0.008 | -0.008 | -0.006 | -0.0 |
| 19.444 | 0.009 | 0.009 | 0.002 | -0.004 | -0.012 | -0.015 | -0.017 | -0.012 | -0.010 | -0.010 | -0.008 | -0.003 | -0.0 |
| 19.944 | 0.009 | 0.009 | 0.002 | -0.006 | -0.013 | -0.017 | -0.021 | -0.013 | -0.014 | -0.012 | -0.012 | -0.008 | -0.0 |
| 20.444 | 0.005 | 0.002 | -0.002 | -0.012 | -0.019 | -0.025 | -0.025 | -0.021 | -0.021 | -0.019 | -0.017 | -0.017 | -0.3 |
| 20.744 | -0.009 | -0.009 | -0.017 | -0.023 | -0.032 | -0.036 | -0.042 | -0.038 | -0.038 | -0.038 | -0.038 | -0.039 | -0.0 |

Table 1.7 Experimental pressure coefficients c_p for $\alpha = 5.11^o$; $M_{\infty} = 1.0$ and $Re_D = 6.1 \cdot 10^5$

| | | | | | | Р | | | | | | | |
|-------------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar | angle, Φ | , deg. | | | | | |
| X/D | | 15 | 30 | 49 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.653 | 0.659 | 0.644 | 0.683 | 0.590 | 0.552 | 0.521 | 0.490 | 0.461 | 0.440 | 0.427 | 0.41 | 0.41 |
| 0.482 | 0.391 | 0.396 | 0.377 | 0.429 | 0.325 | 0.291 | 0.261 | 0.224 | C.199 | 0.175 | 0.167 | 0.157 | 0.15 |
| 0.731 | 0.175 | 0.178 | 0.163 | 0.204 | 0.107 | 0.076 | 0.649 | 0.027 | -0.002 | -0.019 | -0.023 | -0.026 | -0.03 |
| 0.980 | -0.059 | -0.055 | -0.073 | -0.026 | -0.119 | -0.143 | -0.168 | -0.173 | -0.2:5 | -0.232 | -0.263 | -0.242 | -0.2 |
| 1.238 | -0.260 | -0.253 | -0.271 | -0.235 | -0.314 | -0.338 | -0.359 | -0.331 | -0.396 | -0.412 | -0.417 | -0.423 | -0.4 |
| 1.500 | -0.345 | -0.342 | -0.353 | -0.324 | -0.395 | -0.412 | -0.430 | -0.419 | -0.463 | -0.469 | -0.470 | -0.471 | -0.4 |
| 1.944 | -0.257 | -0.250 | -0.264 | -0.257 | -0.300 | -C.313 | -0.324 | -0.332 | -0.328 | -0.324 | -0.314 | -0.30 | -C. 3 |
| 2.444 | -0.182 | -0.179 | -0.190 | -0.228 | -0.211 | -0.217 | -0.214 | -0.294 | -0.193 | -0.175 | -0.161 | -0.154 | -0.15 |
| 2.944 | -0.129 | -0.126 | -0.133 | -0.196 | -0.144 | -0.143 | -0.143 | -0.137 | -0.122 | -0.115 | -0.134 | -0.007 | -0.0 |
| 3.444 | -0.083 | -0.083 | -0.090 | -0.136 | -0.101 | -0.108 | -0.109 | -0.101 | -0.094 | -0.090 | -0-083 | -0.07 | -0.0 |
| 3.944 | -0.051 | -0.067 | -0.065 | -0.101 | -0.076 | -0.083 | -0.083 | -0.090 | -0.069 | -0.362 | -0.065 | -0.05 | -0.0 |
| 4.444 | 0.053 | -0.048 | -0.030 | -0.079 | 0.028 | 0.020 | 0.016 | 0.016 | 0.027 | 0.327 | -0.009 | 0.027 | 0.0 |
| 4.944 | 0.050 | 0.060 | 0.057 | 0.030 | 0.040 | 0.034 | 0.034 | 0.136 | 0.040 | 0.044 | 0.248 | 0.05 | 0.0 |
| 5.444 | 0.058 | 0.069 | 0.058 | 0.039 | 0.037 | 0.033 | 0.032 | 0.035 | 0.037 | 0.041 | 0.051 | 0.05 | 0.0 |
| 5.944 | 0.048 | 0.062 | 0.052 | 0.034 | 0.028 | 0.027 | 0.027 | 0.027 | 0.028 | 0.232 | 0.043 | 0.043 | C.05 |
| 6.444 | 0.035 | 0.052 | 0.040 | 0.023 | 0.020 | 0.013 | 0.013 | 0.016 | 0.020 | 0.023 | 0.030 | 0.03 | 0.03 |
| 6.944 | 0.030 | 0.042 | 0.030 | 0.016 | 0.009 | 0.006 | 0.006 | 0.009 | 0.013 | 0.013 | 0.023 | 0.02. | 0.0. |
| 7.444 | 0.023 | 0.028 | 0.020 | 0.002 | 0.002 | -0.005 | -0.005 | -9.032 | 0.002 | 0.006 | C.009 | C.01 | 0.0 |
| 7.944 | 0.020 | 0.023 | 0.016 | -0.005 | -0.002 | -0.009 | -0.009 | -0.005 | -0.002 | 0.002 | 0.002 | 0.006 | 0.01 |
| 8.444 | 0.016 | 0.016 | 0.009 | -0.016 | -0.005 | -0.012 | -0.012 | -0.009 | -0.005 | -0.002 | -C.002 | 0.00 | C. C |
| 8.944 | 0.016 | 0.009 | 0.009 | -0.019 | -0.009 | -0.012 | -0.012 | -0.009 | -0.005 | -0.302 | -0.005 | 0.00 | 0.0 |
| 9.444 | 0.016 | 0.013 | 0.005 | -0.023 | -0.012 | -0.019 | -0.019 | -0.019 | -0.009 | -0.005 | -0.009 | -0.00 | -0.00 |
| 9.944 | 0.013 | 0.009 | 0.006 | -0.019 | -0.009 | -0.016 | -0.015 | -0.012 | -0.005 | -0.005 | -0.002 | -0.0C. | 0.0 |
| 10.444 | 0.016 | 0.020 | 0.013 | -0.011 | -0.005 | -0.009 | -0.011 | -0.007 | -0.004 | -2.202 | -0.002 | -0.00 | 0.0 |
| 10.944 | 0.020 | 0.020 | 0.013 | -0.009 | -0.004 | -0.009 | -0.009 | -0.007 | -0.004 | -0.004 | -0.002 | 0.00. | 0.00 |
| 11.444 | 0.016 | 0.016 | 0.009 | -0.016 | -0.007 | -0.013 | -0.013 | -0.C11 | -0.007 | -0.005 | -0.005 | -0.004 | 0.00 |
| 21.744 | 0.016 | 0.013 | 0.009 | -0.016 | -0.009 | -0.013 | -0.014 | -0.009 | -0.006 | -0.005 | -0.007 | -0.00 | -0.00 |
| 12.444 | 0.016 | 0.013 | 0.006 | -0.016 | -0.007 | -0.013 | -0.013 | -0.009 | -0.006 | -0.005 | -0.004 | -0.00. | 0.0 |
| 12.944 | 0.020 | 0.016 | 0.009 | -0.013 | -0.005 | -0.009 | -0.011 | -0.007 | -0.004 | -0.004 | -0.002 | 0.002 | 0.00 |
| 13.444 | 0.013 | 0.016 | 0.009 | -0.914 | -0.007 | -0.013 | -0.013 | -0.007 | -0.013 | -0.004 | -0.002 | -0.00 | C.0. |
| 13.944 | 0.015 | 0.020 | 0.009 | -0.014 | -0.007 | -0.011 | -0.011 | -0.007 | -0.004 | -0.004 | -0.002 | -0.000 | 0.00 |
| 14.444 | 0.027 | 0.028 | 0.027 | -0.014 | -0.007 | -0.012 | -0.012 | -0.008 | -0.005 | -0.005 | -0.003 | -0.001 | 0.00 |
| 14.944 | 0.016 | 0.016 | 0.009 | -0.013 | -0.007 | -0.013 | -0.013 | -0.009 | -0.006 | -0.005 | -0.004 | -0.002 | 0.00 |
| 15.444 | 0.014 | 0.013 | 0.007 | -0.016 | -0.009 | -0.614 | -0.014 | -0.009 | -0.007 | -0.005 | -0.004 | -0.002 | 0.00 |
| 15.944 | 0.013 | 0.009 | 0.006 | -0.018 | -0.011 | -0.014 | -0.014 | -0.011 | -0.007 | -0.007 | -0.007 | -0.005 | -0.00 |
| 16.444 | 0.009 | 0.006 | 0.002 | -0.004 | -0.002 | -0.002 | -0.002 | 0.002 | 0.003 | 0.003 | 0.003 | 0.00% | 0.0 |
| 16.944 | 0.013 | 0.009 | 0.002 | -0.009 | -0.000 | -0.004 | -0.004 | -0.000 | 0.002 | 0.002 | -0.000 | 0.005 | 0.00 |
| 17.444 | 0.009 | 0.009 | 0.009 | -0.020 | -0.009 | -0.013 | -0.013 | -0.009 | -0.006 | -0.005 | -0.004 | -0.002 | 0.00 |
| 17.944 | 0.013 | 0.016 | 0.006 | -0.013 | -0.009 | -0.013 | -0.014 | -0.09 | -0.006 | -0.005 | -0.002 | -0.002 | 0.0 |
| 18.444 | 0.009 | 0.009 | 0.006 | -0.016 | -0.011 | -0.016 | -0.014 | -0.009 | -0.007 | -0.007 | -0.004 | -0.004 | -0.00 |
| 16.944 | 0.013 | 0.016 | 0.006 | -0.009 | -0.009 | -0.013 | -0.013 | -0.009 | -0.006 | -0.005 | -0.004 | -0.004 | -0.00 |
| 19.444 | 0.013 | 0.013 | 0.006 | -0.014 | -0.009 | -0.013 | -0.013 | -0.007 | -0.006 | -0.006 | -0.005 | -0.005 | -0.00 |
| 19.944 | 0.013 | 0.009 | 0.006 | -0.018 | -0.009 | -0.013 | -0.013 | -0.009 | -0.007 | -0.507 | -0.007 | -0.004 | -c.03 |
| 20.444 | 0.013 | 0.009 | 0.006 | -0.016 | -0.011 | -0.014 | -0.016 | -0.013 | -0.011 | -0.011 | -0.011 | -0.007 | -0.00 |
| 20.944 | 0.002 | 0.006 | -0.002 | -0.020 | -0.020 | -0.023 | -0.027 | -0.025 | -0.025 | -0.027 | -0.027 | -0.025 | -0.0 |
| 21.444 | -0.065 | -0.062 | -0.069 | -0.074 | -0.095 | -0.109 | -0.124 | -0.137 | -0.142 | -0.144 | -0.144 | -0.135 | -0.1 |
| | | | | | | | V | | | **** | ***** | 0, | |

Table 1.8 Experimental pressure coefficients e_p for α = 5.12°, M_{∞} 1.1 and Re_D = 6.2 · 10⁵

| cordinates | | | | | | Polar an | gle, Φ, α | leg. | | | | | |
|------------|--------|--------|--------|--------|--------|----------|-----------|--------|--------|--------|--------|--------|-------|
| x/D | 0 | 19 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 100 |
| 0.251 | 0.733 | 0.728 | 0.716 | 0.697 | 0.667 | 0.619 | 0.599 | 0.569 | 0.539 | 0.523 | 0.511 | 0.49 | 0.500 |
| 0.482 | 0.481 | 0.475 | 0.461 | 0.442 | 0.411 | 0.375 | 0.350 | 0.315 | 0.292 | 0.271 | 0.259 | C. 241 | 0.244 |
| 0.731 | 0.217 | 0.269 | 0.257 | 0.235 | 0.204 | 0.173 | 0.148 | 0.121 | 0.075 | 0.078 | 0.070 | 0.06 | 0.05 |
| 0.980 | 0.053 | 0.049 | 0.034 | 0.022 | -0.005 | -0.031 | -0.054 | +0.017 | -0.037 | -0.111 | -0.117 | -0.12 | -0.12 |
| 1.238 | -0.133 | -0.140 | -0.150 | -0.166 | -0.190 | -0.213 | -0.232 | -0.252 | -0.269 | -0.282 | -0.285 | -0.29 | -0.23 |
| 1.500 | -0.219 | -0.223 | -0.233 | -0.249 | -0.269 | -0.289 | -0.305 | -0.322 | -0.335 | -0.342 | -G.335 | -0.34 | -0.34 |
| 1.944 | -0.157 | -0.157 | -0.167 | -0.183 | -0.200 | -0.217 | -0.226 | -0.233 | -0.235 | -0.236 | -0.219 | -0.22. | -0.23 |
| 2.444 | -0.104 | -0.107 | -0.114 | -0.127 | -0.137 | -0.144 | -0.143 | -0.140 | -0.130 | -0.117 | -0.111 | -0.097 | -0.03 |
| 2.944 | -0.067 | -C.068 | -0.071 | -0.080 | -0.091 | -C.091 | -0.090 | -0.087 | -0.074 | -0.061 | -0.051 | -0.041 | -0.03 |
| 3.444 | -0.038 | -0.038 | -0.048 | -0.051 | -0.058 | -0.061 | -0.064 | -0.058 | -0.048 | -0.041 | -0.035 | -0.02 | -0.01 |
| 3.944 | -0.015 | -0.016 | -0.021 | -0.034 | -0.035 | -0.038 | -0.041 | -0."38 | -0.034 | -0.034 | -0.028 | -0.02> | -0.02 |
| 4.444 | -0.005 | -0.008 | -0.015 | -0.021 | -0.035 | -0.041 | -0.041 | -0.134 | -0.028 | -0.025 | -0.028 | -0.C1: | -0.01 |
| 4.944 | -0.011 | -0.011 | -0.018 | -0.028 | -0.031 | -0.035 | -0.031 | -0.:31 | -0.025 | -0.011 | -0.011 | -0.00 | -0.00 |
| 5.444 | -0.008 | -0.008 | -0.011 | -0.015 | -0.021 | -0.021 | -0.028 | -0.021 | -0.018 | -0.015 | -0.008 | -0.003 | -0.00 |
| 5.944 | 0.002 | 0.002 | -0.001 | -0.015 | -0.C15 | -0.C25 | -0.018 | -0.018 | -0.018 | -0.011 | -0.011 | -0.00- | -0.00 |
| 6.444 | 0.009 | 0.000 | -0.001 | -0.005 | -0.051 | -0.021 | -0.028 | -0.021 | -0.015 | -0.015 | -0.011 | -c.cc: | -6.00 |
| 4.944 | 0.000 | 0.000 | 0.002 | -0.005 | 0.002 | -0.011 | -0.005 | -0.008 | -0.011 | -0.008 | -C.008 | -C.OC: | 0.00 |
| 1.444 | C.054 | 0.052 | 0.037 | 0.025 | -0.005 | -0.028 | -0.015 | -0.025 | -0.025 | -0.015 | -0.011 | -0.015 | -0.00 |
| 7.944 | 0.009 | 0.009 | -0.005 | -0.008 | -0.045 | -0.064 | -0.051 | -0.054 | -0.051 | -0.034 | -0.024 | -0.031 | -0.02 |
| 8-444 | -0.031 | -0.031 | -0.044 | -0.051 | -0.074 | -0.081 | -0.077 | -0.071 | -0.061 | -0.054 | -0.048 | -0.051 | -0.04 |
| 8.944 | -0.048 | -0.051 | -0.058 | -0.067 | -0.068 | -0.071 | -0.071 | -0.068 | -0.058 | -0.061 | -0.061 | -0.05. | -0.05 |
| 9.444 | -0.357 | -0.058 | -0.064 | -0.074 | -0.064 | -0.068 | -0.061 | -0.054 | -0.049 | -0.044 | -0.051 | -0.043 | -0.01 |
| 9.944 | -0.024 | -0.025 | -0.028 | -0.034 | -C.028 | -0.035 | -0.031 | -0.031 | -0.028 | -0.028 | -0.031 | -0.021 | -0.01 |
| 10.444 | 0.009 | 0.012 | 0.015 | -0.012 | -0.007 | -0.020 | -0.023 | -0.025 | -0.025 | -0.023 | -0.017 | -0.C1 | -0.01 |
| 10.944 | 0.012 | 0.015 | 0.002 | -0.007 | -0.033 | -0.045 | -0.035 | -0.032 | -0.017 | -0.025 | -0.022 | -C.02 | -0.01 |
| 11.444 | -0.024 | -0.024 | -0.035 | -0.033 | -0.037 | -0.030 | -0.018 | -0.012 | -0.002 | -0.003 | -0.018 | 0.017 | 0.01 |
| 11.944 | -0.034 | -0.031 | -0.028 | -0.032 | 0.038 | 0.095 | 0.023 | 0.046 | 0.055 | 0.020 | 0.010 | 0.055 | 0.02 |
| 12.444 | 0.164 | 0.163 | C.150 | 0.132 | C.089 | 0.069 | 0.071 | 0.064 | 0.063 | 0.054 | 0.041 | 0.256 | 0.05 |
| 12.944 | 0.076 | 0.095 | 0.083 | 0.080 | 0.060 | 0.059 | 0.056 | 0.059 | 0.060 | 0.060 | 0.074 | 0.060 | 0.07 |
| 13.444 | 0.266 | 0.067 | 0.061 | 0.053 | 0.047 | 0.042 | 0.041 | 0.046 | 0.050 | 0.248 | 0.020 | 0.052 | 0.05 |
| 13.944 | 0.367 | 0.065 | 0.063 | 0.045 | 0.039 | 0.032 | 0.038 | 0.037 | 0.037 | 0.040 | 0.339 | 0.041 | 0.04 |
| 14.944 | 0.025 | 0.025 | 0.025 | 0.035 | 0.025 | 0.019 | 0.023 | 0.024 | 0.025 | 0.029 | 0.029 | 0.032 | 0.03 |
| | 0.037 | 0.036 | 0.028 | 0.012 | 0.012 | -0.005 | 0.008 | 0.012 | 0.013 | 0.018 | | 0.023 | 0.03 |
| 15.444 | 0.031 | 0.022 | 0.020 | 0.010 | -0.035 | -0.549 | 0.000 | -0.005 | -0.007 | -2.018 | -0.010 | -0.01 | -0.00 |
| 16.444 | -0.024 | -0.024 | -0.035 | -0.017 | -0.035 | -0.037 | -0.035 | -0.030 | -0.033 | -0.022 | -0.013 | -0.017 | -0.01 |
| | | -0.048 | -0.054 | -0.033 | -0.034 | -0.034 | -0.038 | -0.030 | -0.027 | -0.028 | -0.022 | -0.022 | -0.01 |
| 16.744 | -0.048 | -0.031 | -0.035 | -0.045 | -0.040 | -0.040 | -0.038 | -0.640 | -0.027 | -0.040 | -0.038 | -0.031 | -0.03 |
| 17.944 | -0.015 | -0.011 | -0.018 | -0.027 | -0.005 | -0.003 | -0.020 | -0.010 | -0.003 | -3.025 | -C.033 | -0.01 | -0.02 |
| 16.444 | 0.025 | 0.025 | 0.018 | 0.007 | 0.023 | 0.029 | 0.010 | 0.023 | 0.034 | 0.003 | -0.015 | 0.007 | -0.00 |
| 18.944 | 0.055 | 0.046 | 0.053 | 0.023 | 0.033 | 0.031 | 0.037 | 0.044 | 0.042 | 0.034 | 0.010 | 0.045 | 0.03 |
| | 0.047 | 0.045 | 0.041 | 0.040 | 0.013 | -C.000 | 0.022 | | 0.017 | 0.043 | 0.047 | 0.047 | 0.05 |
| 17.444 | 0.025 | 0.025 | 0.018 | 0.010 | -0.000 | -0.022 | -0.000 | -0.020 | -3.010 | 0.015 | 0.036 | 0.022 | 0.03 |
| | 0.009 | 0.009 | 0.002 | -0.002 | -0.029 | | | | -0.027 | -0.010 | 0.010 | -0.003 | 0.00 |
| 20.444 | -0.009 | -0.009 | -0.015 | -0.025 | -0.039 | -0.034 | -0.025 | -0.027 | -0.040 | -0.010 | -0.020 | -0.023 | -0.02 |
| 21.444 | -0.036 | -0.036 | -0.044 | -0.048 | -0.075 | -0.089 | -0.038 | -0.039 | -0.149 | -0.150 | -0.128 | -0.105 | -0.09 |

Table 1.9 Experimental pressure coefficients c_p for $\alpha = 5.13^{\circ}$, $M_{\infty} = 1.2$ and $Re_D = 6.3 \cdot 10^5$

| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| X/D | 0 | 19 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.768 | 0.763 | 0.746 | 0.735 | 0.703 | 0.656 | 0.637 | 0.606 | 0.577 | 0.559 | 0.545 | 0.532 | 0.53 |
| 0.482 | 0.515 | 0.512 | 0.498 | 0.481 | 0.449 | 0.414 | 0.389 | 0.33 | 0.332 | 0.312 | 0.299 | 0.299 | C.28 |
| 0.731 | 0.320 | 0.312 | 0.300 | 0.277 | 0.246 | 0.215 | 0.187 | 0.150 | 0.133 | 0.116 | 0.109 | 0.132 | 0.07 |
| 0.980 | 0.108 | 0.104 | 0.088 | 0.074 | 0.047 | 0.024 | 0.001 | -0.021 | -0.040 | -0.356 | -0.059 | -0.065 | -0.00 |
| 1.238 | -0.072 | -0.075 | -0.084 | -0.097 | -0.122 | -0.144 | -0.163 | -0.182 | -0.201 | -0.207 | -0.220 | -0.220 | -0.21 |
| 1.500 | -0.137 | -0.160 | -0.169 | -0.182 | -0.200 | -0.219 | -0.232 | -0.242 | -0.264 | -0.260 | -0.264 | -0.264 | -0.27 |
| 1.944 | -3.119 | -0.122 | -0.134 | -0.141 | -0.163 | -0.179 | -0.192 | -0.198 | -0.201 | -0.158 | -0.175 | -0.179 | -0.16 |
| 2.444 | -0.085 | -0.087 | -0.094 | -0.094 | -0.116 | -0.125 | -0.122 | -0.116 | -0.103 | -0.100 | -0.100 | -0.081 | -0.09 |
| 2.944 | -0.062 | -0.062 | -0.062 | -0.069 | -0.078 | -0.075 | -0.081 | -0.C34 | -0.072 | -0.268 | -0.053 | -0.059 | -0.05 |
| 3.444 | -0.025 | -0.028 | -0.034 | -0.043 | -0.043 | -0.050 | -0.053 | +0.053 | -D.050 | -0.043 | -0.037 | -0.031 | -0.03 |
| 3.944 | -0.006 | -0.006 | -0.005 | -0.024 | -0.028 | -0.043 | -0.043 | -0.037 | -0.040 | -0.021 | -0.018 | -0.015 | -0.01 |
| 4.444 | -0.028 | -0.024 | -0.034 | -0.028 | -0.040 | -0.037 | -0.043 | -0.043 | -0.040 | -0.037 | -0.024 | -0.021 | -0.01 |
| 4.944 | -0.006 | -0.009 | -0.018 | -0.031 | -0.040 | -0.053 | -0.053 | -0.046 | -0.025 | -0.027 | -0.021 | -0.021 | -0.01 |
| 5.444 | 0.001 | -0.009 | -0.012 | -0.006 | -0.024 | -0.C31 | -0.034 | -0.031 | -0.037 | -0.321 | -0.028 | -0.012 | -0.01 |
| 5.244 | -0.009 | -0.009 | -0.009 | -0.034 | -0.037 | -0.047 | -0.047 | -0.040 | -0.034 | -0.031 | -0.015 | -0.021 | -0.01 |
| 4.444 | -0.009 | -0.012 | -0.012 | -0.021 | -0.034 | -0.043 | -0.043 | -0.237 | -0.025 | -0.021 | -0.024 | -0.018 | -0.01 |
| 8.744 | 0.010 | 0.004 | -0.009 | -0.015 | -0.024 | -0.034 | -0.034 | -0.028 | -0.028 | -0.018 | -0.021 | -0.012 | -0.00 |
| 7.444 | -0.015 | -0.015 | -0.021 | -0.028 | -0.037 | -0.037 | -0.031 | -0.016 | -0.009 | -0.009 | -0.009 | -3.306 | -0.01 |
| 7.944 | -0.006 | -0.009 | 0.001 | -0.006 | -0.015 | -0.018 | -0.021 | -0.021 | -0.021 | -0.012 | -0.012 | -0.006 | 0.00 |
| 8.444 | 0.007 | 0.010 | 0.001 | -0.006 | -0.009 | -0.006 | -0.009 | -0.009 | -0.006 | -0.015 | -0.012 | -0.015 | -0.01 |
| 8.944 | 0.010 | 0.010 | 0.004 | -0.009 | -0.018 | -0.031 | -0.031 | -0.021 | -0.018 | -0.309 | -0.015 | -0.009 | -0.00 |
| 9.444 | 0.017 | 0.004 | -0.002 | -0.015 | -0.018 | -0.021 | -0.025 | -0.028 | -0.025 | -0.021 | -0.018 | -0.025 | -0.01 |
| 9.944 | 0.001 | 0.001 | 0.004 | -0.006 | -0.015 | -0.018 | -0.021 | -0.015 | -0.009 | -0.009 | -0.015 | -0.006 | -0.00 |
| 10.444 | 0.017 | 0.013 | 0.007 | 0.005 | -0.017 | -0.023 | -0.020 | -0.014 | -0.004 | -0.006 | -0.004 | -0.006 | 0.00 |
| 10.944 | U-007 | 0.001 | -0.00Z | -0.014 | -0.004 | 0.010 | 0.023 | 0.032 | 0.040 | 0.028 | 0.016 | 0.633 | 0.03 |
| 11.444 | 0.044 | 0.060 | 0.066 | 0.069 | 0.046 | 0.033 | 0.028 | 0.028 | 0.029 | 0.035 | 0.040 | 0.042 | 0.05 |
| 11.944 | 0.115 | 0.107 | 0.086 | 0.066 | 0.067 | 0.043 | 0.039 | 0.033 | 0.074 | 0.026 | 0.029 | 0.023 | 0.63 |
| 12.444 | 0.044 | 0.038 | 0.023 | 0.039 | 0.005 | -0.011 | -0.007 | -0.001 | -0.603 | 0.004 | 0.013 | 0.005 | 0.01 |
| 12.944 | 0.004 | 0.001 | -0.009 | 0.002 | -0.023 | -0.034 | -0.030 | -0.020 | -0.017 | -0.009 | -0.034 | 0.002 | 0.00 |
| 13.444 | -0.015 | -0.012 | -0.015 | -0.036 | -0.038 | -0.039 | -0.043 | -0.036 | -0.025 | -0.026 | -0.035 | -0.025 | -0.01 |
| 13.944 | -0.015 | -0.015 | -0.024 | -0.028 | -0.039 | -0.038 | -0.031 | -0.020 | -0.019 | -0.017 | -0.023 | -0.020 | -0.02 |
| 14.444 | 0.023 | 0.023 | 0.023 | -0.015 | -0.025 | -0.025 | -C.022 | -0.013 | -0.013 | -0.008 | -0.015 | -0.010 | -0.01 |
| 14.944 | 0.013 | 0.007 | -0.002 | -0.001 | -0.011 | -0.012 | -C.012 | -0.006 | -0.008 | 0.001 | -0.006 | 0.001 | C.03 |
| 15.444 | 0.018 | 0.018 | 0.015 | 0.007 | -0.009 | -0.007 | -0.006 | 0.001 | 0.010 | -0.001 | -0.004 | -0.004 | -0.00 |
| 15.944 | 0.023 | 0.030 | 0.033 | -0.003 | 0.026 | 0.020 | 0.010 | 0.005 | 0.004 | 0.007 | 0.008 | 0.007 | 0.01 |
| 16.444 | 0.020 | 0.023 | 0.023 | 0.020 | 0.018 | 0.016 | 0.010 | 0.010 | 0.002 | 0.010 | 0.016 | 0.010 | 0.01 |
| 16.944 | 0.050 | 0.057 | 0.030 | 0.025 | 0.010 | -0.001 | -0.007 | -0.004 | -0.009 | -3.003 | 0.004 | -0.006 | 0.00 |
| 17.444 | 0.007 | -0.002 | -0.021 | -0.017 | -0.031 | -0.C15 | -0.023 | -0.020 | -0.003 | -0.007 | -0.012 | 0.015 | -0.00 |
| 17.944 | 0.023 | 0.017 | -0.002 | 0.012 | -0.012 | -0.014 | -0.015 | -0.012 | -0.008 | -0.011 | -0.017 | -0.014 | -0.CI |
| 18.444 | 0.004 | 0.004 | 0.007 | -0.023 | -C.014 | -0.015 | -0.017 | -0.009 | -0.009 | -0.001 | 0.001 | -0.001 | 0.00 |
| 18.944 | 0.007 | 0.004 | -0.002 | -0.003 | -0.019 | -0.022 | -0.020 | -0.C12 | -0.004 | -0.006 | -0.007 | 0.001 | |
| 19.444 | 0.013 | 0.007 | 0.004 | -0.006 | -0.011 | -0.014 | -0.020 | -0.012 | -0.011 | -0.006 | | -0.002 | 0.00 |
| 19.944 | 0.004 | 0.010 | 0.007 | -0.001 | -0.009 | | | | | | -0.007 | | 0.00 |
| | | 0.035 | 0.027 | 0.033 | | 0.007 | -0.011 | -0.004 | -0.008 | -0.003 | -0.004 | -0.001 | -0.00 |
| 20.444 | 0.038 | | | | 0.015 | | 0.007 | 0.005 | 0.008 | 0.001 | -0.001 | -0.003 | -0.00 |
| 20.944 | 0.013 | 0.010 | 0.001 | -0.007 | -0.012 | -0.008 | -0.007 | 0.002 | 0.005 | 0.008 | 0.008 | 0.612 | 0.01 |
| 21.444 | 0.310 | 0.007 | 0.007 | -0.007 | -0.011 | -0.030 | -0.043 | -0.065 | -0.097 | -0.098 | -0.082 | -0.049 | -0.0 |

Table 1.10 Experimental pressure coefficients c_p for α = 10.17°, M_{∞} = 0.7 and Re_D = 5.2 · 10⁵

| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | 169 0.098 -0.139 -0.277 -0.379 -0.256 -0.048 -0.016 -0.000 -0.001 -0.016 -0.017 -0.017 -0.017 -0.017 -0.017 -0.017 -0.017 -0.017 -0.017 -0.017 | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--|-------|
| */0 | 0 | 16 | - 90 | 45 | 60 | 79 | 90 | 105 | 120 | 135 | 150 | 169 | 160 |
| 0.251 | 0.625 | 0.615 | 0.580 | 0.507 | 0.418 | 0.341 | 0.264 | 0.201 | 0.151 | 0.122 | 0.108 | 0.098 | 0.09 |
| 0.482 | 0.370 | 0.359 | 0.318 | 0.257 | 0.182 | 0.099 | 0.032 | -0.032 | -0.083 | -0.112 | -0.127 | -0.139 | -0.13 |
| 0.731 | 0.153 | 0.139 | 0.101 | 0.043 | -0.022 | -0.096 | -0.160 | -0.213 | -0.250 | -0.261 | -0.270 | -0.277 | -0.27 |
| 0. 350 | -0.043 | -0.064 | -0.096 | -0.144 | -0.213 | -0.271 | -0.325 | -0.361 | -0.373 | -0.373 | -0.387 | -0.379 | -C.3 |
| 1.238 | -0.144 | -0.165 | -0.186 | -0.234 | -0.282 | -0.325 | -0.362 | -0.372 | -0.378 | -0.367 | -0.355 | -0.336 | -0.33 |
| 4.500 | -0.181 | -0.197 | -0.218 | -0.259 | -0.293 | -0.320 | -0.340 | -0.340 | -0.325 | -0.303 | -0.276 | -0.256 | -0.25 |
| 1.944 | -0.016 | -0.022 | -0.048 | -0.080 | -0.112 | -0.138 | -0.149 | -0.144 | -0.117 | -0.091 | -0.069 | -0.048 | -0.04 |
| 2.444 | 0.016 | 0.005 | -0.021 | -0.048 | -0.080 | -0.107 | -0.117 | -0.106 | -0.080 | -0.054 | -0.032 | -0.016 | -0.00 |
| 2.944 | 0.026 | 0.021 | -0.006 | -0.037 | -0.064 | -0.091 | -0.101 | -0.091 | -0.064 | -0.038 | -0.021 | -0.006 | 0.00 |
| 3.444 | 0.026 | 0.021 | -0.000 | -0.032 | -0.064 | -0.085 | -0.091 | -0.080 | 0.054 | -0.032 | -0.021 | -0.000 | C.00 |
| 3.944 | 0.032 | 0.026 | 0.005 | -0.027 | -0.059 | -0.080 | -0.085 | -0.075 | -0.048 | -0.027 | -0.021 | -0.006 | 0.01 |
| 4.444 | 0.037 | 0.026 | 0.005 | -0.027 | -0.053 | -0.080 | -0.085 | -0.069 | -0.038 | -0.027 | -0.027 | -0.011 | 0.01 |
| 4.944 | 0.037 | 0.026 | 0.005 | -0.027 | -0.053 | -0.075 | -0.085 | -0.064 | -0.038 | -0.027 | -0.327 | -0.016 | 0.01 |
| 5.444 | 0.037 | 0.032 | 0.005 | -0.021 | -0.053 | -0.075 | -0.080 | -0.059 | -0.032 | -0.022 | -0.027 | -0.016 | 0.01 |
| 5.344 | 0.037 | 0.032 | 0.010 | -0.021 | -0.048 | -C.069 | -0.075 | -0.053 | -0.027 | -0.022 | -0.027 | -0.016 | 0.01 |
| 6.444 | 0.037 | 0.032 | 0.010 | -0.021 | -0.048 | -0.069 | -0.075 | -0.053 | -0.027 | -0.022 | -0.027 | -0.022 | 0.00 |
| 6.944 | 0.039 | 0.037 | 0.010 | -0.016 | -0.048 | -0.064 | -0.070 | -0.048 | -0.022 | -0.016 | -0.021 | | 0.00 |
| 7.444 | 0.035 | 0.032 | 0.010 | -0.022 | -0.048 | -0.064 | -0.070 | -0.048 | -0.022 | -0.016 | -0.021 | -0.027 | -0.00 |
| 7.344 | 0.040 | 0.037 | 0.010 | -0.016 | -0.043 | -0.064 | -0.064 | -0.043 | -0.022 | -0.016 | -0.021 | -0.027 | -0.00 |
| 8.444 | 0.040 | 0.032 | 0.010 | -0.016 | -0.043 | -0.064 | -0.064 | -0.037 | -0.022 | -0.016 | -0.021 | -0.027 | -0.00 |
| 8-944 | 0.338 | 0.032 | 0.010 | -0.016 | -0.048 | -0.064 | -0.064 | -0.037 | -0.016 | -0.016 | -0.016 | -0.022 | -0.00 |
| 9.444 | 0.039 | 0.032 | 0.010 | -0.022 | -0.053 | -0.069 | -0.075 | -0.043 | -0.022 | -0.022 | -0.021 | -C.038 | -0.01 |
| 9.944 | 0.037 | 0.032 | 0.010 | -0.016 | -0.043 | -0.059 | -0.059 | -0.032 | -0.016 | -0.016 | -0.016 | -0.022 | -0.00 |
| 10.444 | 0.039 | 0.037 | 0.016 | -0.017 | -0.041 | -0.057 | -0.060 | -0.033 | -0.017 | -0.014 | -0.017 | | -0.00 |
| 10.944 | 0.043 | 0.037 | 0.016 | -0.014 | -0.038 | -0.055 | -0.054 | -0.030 | -0.017 | -0.014 | -0.014 | -0.014 | 0.00 |
| 11.444 | 0.041 | 0.037 | 0.016 | -0.017 | -0.041 | -0.057 | -0.054 | -0.030 | -0.020 | -0.020 | -0.017 | -0.020 | -0.00 |
| 11.944 | 0.037 | 0.032 | 0.010 | -0.019 | -0.044 | -0.057 | -0.055 | -0.030 | -0.017 | -0.014 | -0.017 | | -0.00 |
| 12.444 | 0.037 | 0.032 | 0.010 | -0.017 | -0.041 | -0.057 | -0.052 | -0.028 | -0.017 | -0.011 | -C.014 | -0.014 | -0.00 |
| 12.944 | 0.041 | 0.037 | 0.016 | -0.017 | -0.041 | -0.055 | -0.049 | -0.025 | -0.014 | -0.011 | -0.011 | | 0.00 |
| 12.444 | 0.037 | 0.032 | 0.010 | -0.017 | -0.041 | -0.054 | -0.049 | -0.025 | -0.017 | -0.012 | -0.014 | | -0.00 |
| 13.944 | 0.037 | 0.037 | 0.010 | -0.017 | -0.041 | -0.054 | -0.049 | -0.022 | -0.014 | -0.012 | -0.014 | -0.014 | -0.00 |
| 24.444 | 0.037 | 0.037 | 0.037 | -0.015 | -0.040 | -0.054 | -0.049 | -0.022 | -0.014 | -0.012 | -0.014 | | -0.00 |
| 14.944 | 0.037 | 0.037 | 0.010 | -0.014 | -0.038 | -0.054 | -0.049 | -0.022 | -0.014 | -0.012 | -0.014 | | -0.00 |
| 15.444 | 0.037 | 0.034 | 0.010 | -0.014 | -0.038 | -0.052 | -0.046 | -0.019 | -0.014 | -0.011 | -0-011 | | -0.00 |
| 15.944 | 0.037 | 0.032 | 0.010 | -0.014 | -0.038 | -0.052 | -0.046 | -0.019 | -0.014 | -0.011 | -0.011 | | -0.00 |
| 16.444 | 0.037 | 0.032 | 0.010 | 0.002 | -0.017 | -0.025 | -0-022 | -0.003 | 0.002 | 0.00Z | 0.002 | | C. 01 |
| 16.744 | 0.037 | 0.032 | 0.016 | -0.003 | -0.019 | -0.030 | -0.025 | -0.006 | -0.003 | -0.001 | -0.001 | | 0.00 |
| 17-444 | 0.037 | 0.032 | 0.010 | -0.017 | -0.038 | -0.052 | -0.047 | -0.019 | -0.014 | -0.011 | -0.014 | | -0.00 |
| 17.944 | 0.037 | 0.032 | 0.010 | -0.017 | -0.038 | -0.049 | -0.047 | -0.022 | -0.014 | -0.014 | -0.014 | | -0.00 |
| 18.444 | 0.032 | 0.032 | 0.010 | +0.019 | -0.041 | -0.052 | -0.047 | -0.022 | -0.017 | -0.017 | -0.017 | | -0.01 |
| 18.944 | 0.032 | 0.026 | 0.005 | -0.019 | -0.041 | -0.052 | -0.047 | -0.025 | -0.017 | -0.017 | -0.017 | | -0.01 |
| 19.444 | 0.032 | 0.026 | 0.005 | -0.019 | -0.041 | -0.052 | -0.047 | -0.072 | -0.020 | -0.017 | -0.017 | | -0.01 |
| 19.944 | 0.026 | 0.026 | 0.005 | -0.025 | -0.044 | -0.057 | -0.052 | -0-027 | -0.055 | -0.020 | -0.019 | -0.020 | -0.01 |
| 20.444 | 0.021 | 0.016 | -0.006 | -0.030 | -0.052 | -0.062 | -0.060 | -0.036 | -0.030 | -0.028 | -0.027 | -0.028 | -0.02 |
| 20.944 | -0.000 | -0.000 | -0.021 | -0.049 | -0.068 | -0.C78 | -0.079 | -0.054 | -0.046 | -0.044 | -0.043 | -0.044 | -0.04 |
| 21.444 | -0.096 | -0.096 | -0.106 | -0.127 | -0.143 | -0.148 | -0.154 | -0.135 | -0.130 | -0.122 | -0.119 | -0.114 | -0.10 |

Table 1.11 Experimental pressure coefficients c_p for α =10.20°, M_{∞} = 0.8 and Re_D = 5.6 · 10⁵

| | | | | | | Р | | | | | | ь | |
|--------------------|----------------------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|-------|
| Coordinates X/D | Polar angle, Φ, deg. | | | | | | | | | | | | |
| | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 100 |
| 0.251 | 0.552 | 0.647 | 0.610 | 0.543 | 0.451 | 0.379 | 0.303 | 0.239 | 0.188 | 0.158 | C.142 | 0.13 | 0.130 |
| 0.482 | 0.397 | 0.382 | 0.342 | 0.283 | 0.205 | 0.123 | 0.353 | -0.016 | -0.050 | -0.095 | -0.114 | -0.13 | -0.12 |
| 0.731 | 0.159 | 0.152 | 0.112 | 0.059 | -0.011 | -0.087 | -0.154 | -0-212 | -0.248 | -0.269 | -0.273 | -0.20 | -0.29 |
| 0.953 | -0.055 | -0.074 | -0.109 | -0.154 | -0.229 | -0.301 | -0.351 | -003 | -0.431 | -0.448 | -3.452 | -0.44 | -0.44 |
| 1.233 | -0.185 | -0.199 | -0.225 | -0.275 | -0.322 | -C.377 | -0.418 | -0.434 | -0.431 | -0.421 | -0.403 | -0.38/ | -0.38 |
| 1.500 | -3.238 | -0.248 | -0.275 | -0.306 | -0.345 | -0.377 | -0.367 | -0. 185 | -0.364 | -0.332 | -0.305 | -0.25. | -0.27 |
| 1.944 | -0.025 | -0.034 | -0.056 | -0.087 | -0.118 | -0.145 | -0.154 | -0.145 | -0.123 | -0.096 | -0.069 | -0.05 | -C.04 |
| 2.444 | 0.007 | -0.002 | -0.025 | -0.052 | -0.087 | -0.109 | -0.119 | -0.:09 | -0.037 | -0.056 | -0.034 | -0.01 | -0.00 |
| 2.944 | 0.024 | 0.015 | -0.007 | -0.038 | -0.069 | -0.096 | -0.101 | -0. 96 | -0.069 | -0.043 | -0.025 | -0.007 | 0.00 |
| 3.444 | 0.029 | 0.015 | -0.002 | -0.034 | -0.065 | -0.087 | -0.376 | -0.083 | -0.056 | -0.034 | -0.025 | -0.011 | 0.00 |
| 3.744 | 0.033 | 0.024 | 0.002 | -0.029 | -0.060 | -0.083 | -0.037 | -0.074 | -0.047 | -0.029 | -0.025 | -0.011 | 0.00 |
| 4.444 | 0.033 | 0.024 | 0.002 | -0.025 | -0.060 | -0.083 | -0.037 | -0.569 | -0.043 | -0.029 | -0.029 | -0.01 | 0.00 |
| 1.944 | 0.033 | 0.024 | 0.002 | -0.025 | -0.056 | -0.083 | -O.C83 | -0.169 | -0.038 | -0.029 | -0.034 | -0.02 | 0.00 |
| 5.444 | 0.035 | 0.029 | 0.007 | -0.025 | -0.056 | -0.078 | -0.078 | -0.060 | -0.034 | -0.025 | -0.034 | -0.02 | 0.00 |
| 5.944 | 0.036 | 0.029 | 0.007 | -0.020 | -0.051 | -0.074 | -0.078 | -0.056 | -0.029 | -0.025 | -0.034 | -0.020 | 0.00 |
| 6.444 | 0.035 | 0.029 | 0.007 | -0.025 | -0.051 | -0.074 | -0.074 | -0.056 | -0.025 | -0.020 | -0.034 | -0.021 | 0.00 |
| 6.944 | 0.040 | 0.033 | 0.011 | -0.020 | -0.047 | -0.669 | -0.070 | -0. 47 | -0.025 | -0.020 | -0.025 | -0.02 | -0.00 |
| 7.444 | 0.038 | 0.033 | 0.011 | -0.020 | -0.051 | -0.069 | -0.070 | -0.047 | -0.025 | -0.020 | -0.025 | -0.027 | -0.00 |
| 7.744 | 0.043 | 0.033 | 0.011 | -0.016 | -0.047 | -0.065 | -0.065 | -0.043 | -0.020 | -0.016 | -0.020 | -0.02 | -0.00 |
| 6.444 | 0.039 | 0.033 | 0.011 | -0.C20 | -0.047 | -0.065 | -0.065 | -0.043 | -0.025 | -0.020 | -0.025 | -0.02 | -C.01 |
| 6.944 | 0.038 | 0.033 | 0.011 | -0.023 | -0.047 | -0.065 | -0.061 | 2. 6 38 | -0.022 | -0.016 | -0.920 | -0.3 | -0.00 |
| 9.444 | 0.040 | 0.029 | 0.007 | -0.025 | -0.056 | -0.074 | -2.074 | -0.047 | -0.025 | -0.025 | -0.029 | -0.043 | -0.02 |
| 9.944 | 0.036 | 0.029 | 0.007 | -0.020 | -0.047 | -0.065 | -0.061 | -0.038 | -0.020 | -0.023 | -0.020 | -0.025 | -0.01 |
| 10.444 | 0.039 | 0.033 | 0.011 | -0.016 | -0.043 | -0.059 | -0.057 | -0.034 | -0.019 | -0.016 | -0.019 | -0.021 | -0.00 |
| 10.944 | 0.040 | 0.033 | 0.011 | -0.014 | -0.041 | -0.057 | -0.055 | -0.630 | -0.019 | -0.016 | -0.316 | -0.015 | -0.00 |
| 11.444 | 0.040 | 0.033 | 0.011 | -0.019 | -0.043 | -0.059 | -0.055 | -0.032 | -0.021 | -0.019 | -0.019 | -0.023 | -0.01 |
| 11.944 | 0.039 | 0.033 | 0.011 | -0.019 | -0.045 | -0.061 | -0.055 | -0.130 | -0.019 | -0.016 | -0.019 | -0.021 | -0.01 |
| 12.444 | 0.038 | 0,029 | 0.011 | -0.019 | -0.043 | -0.059 | -0.053 | -0.028 | -0.019 | -0.016 | -0.016 | -0.01 | -0.00 |
| 12.944 | 0.041 | 0.033 | 0.011 | -C.C16 | -0.041 | -0.057 | -0.050 | -0.628 | -0.016 | -0.014 | -0.014 | -0.01: | -0.00 |
| 13.444 | 0.037 | 0.033 | 0.011 | -0.019 | -0.043 | -C.C57 | -0.050 | -0.028 | -0.019 | -C.014 | -0.016 | -0.015 | -0.00 |
| 13.944 | 0.039 | 0.033 | 0.011 | -0.016 | -0.041 | -0.055 | -0.050 | -0.025 | -0.016 | -0.014 | -0.014 | -0.015 | -0.00 |
| 14.444 | 0.033 | 9.033 | 0.033 | -0.015 | -0.040 | -0.055 | -0.049 | -0.024 | -0.016 | -0.014 | -0.015 | -0.015 | -0.00 |
| 14.944 | 0.040 | 0.033 | 0.011 | -0.014 | -0.039 | -0.055 | -0.048 | -0.023 | -0.016 | -0.014 | -C.016 | -0.014 | -0.00 |
| 15.444 | 0.039 | 0.031 | 0.011 | -0.014 | -0.039 | -0.052 | -0.046 | -0.321 | -0.014 | -0.012 | -0.012 | -0.012 | -0.00 |
| 15.944 | 0.039 | 0.029 | 0.011 | -0.014 | -0.039 | -0.050 | -0.044 | -0.021 | -0.016 | -0.012 | -0.012 | -0.014 | -0.00 |
| 15.444 | 0.037 | 0.033 | 0.011 | 0.002 | -0.016 | -0.025 | -0.021 | -0.003 | -0.001 | 0.002 | 0.002 | 0.003 | 0.00 |
| 16.944 | 0.040 | 0.033 | 0.016 | -0.003 | -0.021 | -0.030 | -0.023 | -0.007 | -0.005 | -0.003 | -0.001 | -0.003 | 0.00 |
| 17.444 | 0.037 | 0.029 | 0.011 | -0.014 | -0.039 | -0.050 | -0.041 | -0.019 | -0.014 | -0.012 | -0.012 | -0.014 | -0.CI |
| 17.944 | 0.038 | 0.033 | 0.011 | -0.014 | -0.037 | -0.048 | -0.041 | -0.019 | -0.014 | -0.012 | -0.012 | -0.014 | -0.01 |
| 18.444 | 0.035 | 0.029 | 0.011 | -0.016 | -0.039 | -0.050 | -0.041 | -0.021 | -0.016 | -0.014 | -0.314 | -0.015 | -0.01 |
| 18.944 | 0.033 | 0.029 | 0.011 | -0.016 | -0.039 | -0.050 | -0.041 | -0.021 | -0.016 | -0.014 | -0.014 | -0.015 | -0.01 |
| 19.444 | 0.033 | 0.029 | 0.011 | -0.016 | -0.039 | -C.048 | -0.041 | -0.019 | -0.016 | -0.014 | -0.014 | -0.017 | -0.01 |
| 19.944 | 0.033 | 0.029 | 0.007 | -0.019 | -0.041 | -0.052 | -0.044 | -0.023 | -0.019 | -0.019 | -0.015 | -0.015 | -0.01 |
| 20.444 | 0.029 | 0.020 | 0.002 | -0.025 | -0.048 | -0.057 | -0.055 | -0.030 | -0.025 | -0.023 | -0.021 | -0.023 | -0.02 |
| 20.944 | 0.011 | 0.002 | -0.016 | -0.041 | -0.064 | -0.075 | -0.068 | -0.048 | -0.043 | -0.041 | -0.039 | -0.043 | -0.03 |
| 21.444 | -0.987 | -0.091 | -0.105 | -0.125 | -0.143 | -0.149 | -0.147 | -0.134 | -0.129 | -0.122 | -0.118 | -0.113 | -0.10 |
| ***** | 4.44 | 4.011 | 44443 | 0.123 | 4.1.1 | 44143 | V.141 | 0.134 | 01127 | 0.122 | 0.110 | A.11. | 0.10 |

Table 1.12 Experimental pressure coefficients c_p for α = 10.24°, M_{∞} = 0.9 and Re_D = 5.9 · 10⁵

| | | | | | | Р | | | | ~ | | | | |
|-------------|--------|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--|
| Coordinates | | Polar angle, Ф, deg. | | | | | | | | | | | | |
| | 0 | 15 | 90 | 49 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 190 | |
| 0.251 | 0.713 | 0.691 | 0.662 | 0.592 | 0.510 | 0.438 | 0.362 | 0.310 | 0.251 | 0.219 | 0.206 | 0.195 | 0.19 | |
| 0.462 | 0.440 | 0.424 | 0.392 | 0.326 | 0.252 | 0.177 | 0.105 | 0.043 | -C.003 | -0.042 | -0.061 | -0.073 | -0.05 | |
| 0.731 | 0.205 | 0.170 | 0.153 | 0.094 | 0.025 | -0.038 | -0.112 | -C.157 | -0.207 | -0.230 | -0.237 | -0.249 | -0.24 | |
| 0.983 | -0.042 | -0.061 | -0.096 | -0.144 | -0.213 | -0.280 | -0.334 | -0.386 | -0.423 | -0.449 | -0.456 | -0.461 | -0.45 | |
| 1.238 | -0.254 | -0.276 | -0.311 | -0.359 | -0.420 | -0.430 | -0.537 | -0.577 | -0.607 | -0.621 | -0.624 | -0.621 | -0.61 | |
| 1.500 | -0.354 | -0.366 | -0.393 | -0.434 | -0.486 | -0.530 | -0.569 | -0.678 | -0.627 | -0.637 | -0.613 | -0.539 | -0.53 | |
| 1.744 | -0.026 | -0.034 | -0.053 | -0.081 | -0.108 | -0.116 | -0.120 | -0-100 | -0.081 | -0.054 | -0.026 | -0.006 | 0.00 | |
| 2.444 | 0.013 | 0.001 | -0.022 | -0.050 | -0.084 | -0.104 | -0.112 | -0.100 | -0.073 | -0.042 | -0.018 | 0.001 | 0.00 | |
| 2.944 | 0.025 | 0.013 | -0.006 | -0.038 | -0.073 | -0.092 | -0.100 | -0.089 | -0.061 | -0.038 | -0.018 | -0.003 | 0.00 | |
| 3.444 | 0.029 | 0.017 | -0.003 | -0.034 | -0.065 | -0.089 | -0.096 | -0.081 | -0.054 | -0.030 | -0.022 | -0.006 | 0.00 | |
| 3.744 | 0.031 | 0.021 | 0.005 | -0.026 | -0.061 | -0.081 | -0.088 | -0.073 | -0.046 | -0.030 | -0.022 | -0.010 | 0.00 | |
| 4.444 | 0.032 | 0.025 | 0.005 | -0.026 | -0.061 | -0.081 | -0.085 | -0.069 | -0.033 | -0.230 | -0.026 | -0.014 | 0.00 | |
| 4.944 | 0.031 | 0.025 | 0.005 | -0.026 | -0.057 | -0.031 | -0.084 | -0.065 | -0.038 | -0.026 | -0.030 | -C.016 | 0.00 | |
| 5.444 | 0.036 | 0.027 | 0.005 | -0.026 | -0.057 | -0.077 | -0.081 | -0.061 | -0.034 | -0.026 | -0.030 | -0.02? | 0.00 | |
| 5.944 | 0.035 | 0.029 | 0.009 | -0.022 | -0.053 | -0.073 | -0.077 | -0.057 | -0.030 | -0.026 | -0.230 | -0.022 | 0.00 | |
| 6.444 | 0.036 | 0.029 | 0.005 | -0.022 | -0.053 | -0.073 | -0.077 | -0.053 | -0.026 | -0.022 | -0.030 | -0.030 | 0.00 | |
| 8.944 | 0.039 | 0.030 | 0.013 | -0.018 | -0.049 | -0.069 | -0.069 | -0.045 | -0.026 | -0.022 | -0.026 | -0.026 | 0.00 | |
| 7.444 | 0.038 | 0.029 | 0.009 | 0.049 | -0.049 | -0.069 | -0.069 | -0.045 | -0.026 | -0.022 | -0.026 | -0.030 | -0.00 | |
| 7.944 | 0.040 | 0.031 | 0.013 | 0.051 | -0.049 | -0.065 | -0.065 | -0.041 | -0.022 | -0.018 | -0.022 | -0.026 | -0.00 | |
| 6.444 | 0.039 | 0.030 | 0.009 | 0.048 | -0.049 | -0.065 | -0.065 | -0.041 | -0.022 | -0.018 | -0.026 | -0.030 | -0.01 | |
| 8.944 | 0.038 | 0.029 | 0.009 | 0.049 | -0.049 | -0.065 | -0.065 | -0.038 | -0.022 | -0.018 | -0.022 | -0.026 | -0.00 | |
| 9.444 | 0.039 | 0.029 | 0.009 | 0.045 | -0.057 | -0.073 | -0.077 | -0.045 | -0.026 | -0.026 | -0.026 | -0.042 | -0.01 | |
| 9.944 | 0.035 | 0.029 | 0.009 | 0.050 | -0.049 | -0.065 | -0.065 | -0.038 | -0.022 | -0-018 | -0.022 | -0.026 | -0.01 | |
| 10.444 | 0.039 | 0.029 | 0.013 | -0.017 | -0.044 | -0.060 | -0.058 | -0.033 | -0.021 | -0.019 | -0.019 | -0.021 | -0.00 | |
| 10.944 | 0.041 | 0.031 | 0.013 | -0.019 | -0.042 | -0.058 | -0.056 | -0.03L | -0.021 | -0.017 | -0.017 | -0.017 | -0.00 | |
| 11.444 | 0.043 | 0.030 | 0.013 | -0.019 | -0.045 | -0.060 | -0.056 | -0.033 | -0.023 | -0.021 | -0.021 | -0.023 | -0.00 | |
| 11.944 | 0.038 | 0.029 | 0.009 | -0.019 | -0.046 | -0.060 | -0.058 | -0.031 | -0.021 | -0.019 | -0.019 | -0.023 | -0.00 | |
| 12.444 | 0.037 | 0.029 | 0.009 | -0.019 | -0.044 | -0.060 | -0.056 | -0.029 | -0.021 | -0.017 | -0.017 | -0.019 | -0.00 | |
| 12.944 | 0.041 | 0.030 | 0.013 | -0.017 | -0.042 | -0.056 | -0.052 | -0.027 | -0.021 | -0.315 | -0.015 | -0.013 | -0.00 | |
| 13.444 | 0.037 | 0.529 | 0.009 | -0.019 | -0.044 | -0.058 | -0.054 | -0.027 | -0.019 | -0.017 | -0.015 | -0.017 | -0.00 | |
| 13.944 | 0.038 | 0.029 | 0.009 | -0.019 | -0.042 | -0.056 | -0.052 | -0.027 | -0.019 | -0.017 | -0.017 | -0.017 | -0.00 | |
| 14.444 | 0.029 | 0.029 | 0.029 | -0.018 | -0.041 | -0.055 | -0.051 | -0.026 | -0.019 | -0.017 | -0.017 | -0.016 | -0.00 | |
| 14.944 | 0.038 | 0.029 | 0.009 | -0.017 | -0.043 | -0.054 | -0.050 | -0.025 | -0.019 | -0.017 | -0.017 | -0.015 | -0.00 | |
| 15.444 | 0.037 | 0.029 | 0.009 | -0.017 | -0.040 | -0.054 | -0.048 | -0.021 | -0.019 | -0.015 | -0.013 | -0.013 | -0.00 | |
| 15.744 | 0.037 | 0.029 | 0.009 | -0.015 | -0.040 | -0.052 | -0.046 | -0.021 | -0.019 | -0.015 | -C.015 | -0.015 | -0.00 | |
| 16.444 | 0.035 | 0.029 | 0.009 | -0.001 | -0.021 | -0.029 | -0.027 | -0.005 | -0.005 | -0.001 | -0.001 | 0.001 | 0.00 | |
| 10.744 | 0.036 | 0.029 | 0.013 | -0.005 | -0.023 | -0.033 | -0.029 | -0.009 | -0.007 | -0.005 | -0.CO5 | -0.003 | -0.00 | |
| 17.444 | 0.034 | 0.029 | 0.009 | -0.017 | -0.040 | -0.050 | -0.045 | -0.021 | -0.019 | -0.015 | -0.015 | -0.015 | -0.01 | |
| 17.944 | 0.036 | 0.029 | 0.009 | -0.017 | -0.040 | -0.050 | -0.044 | -0.021 | -0.019 | -0.017 | -0.017 | -0.013 | -0.01 | |
| 18.444 | 0.033 | 0.025 | 0.009 | -0.019 | -0.042 | -0.052 | -0.046 | -0.021 | -0.019 | -0.017 | -0.017 | -0.017 | -0.01 | |
| 18.944 | 0.031 | 0.025 | 0.005 | -0.019 | -0.042 | -0.052 | -0.046 | -0.021 | -0.019 | -0.017 | -0.019 | -0.017 | -0.02 | |
| 19.444 | 0.031 | 0.025 | 0.009 | -0.017 | -0.040 | -0.051 | -0.044 | -0.021 | -0.019 | -0.017 | -0.019 | -0.019 | -0.02 | |
| 19.944 | 0.032 | 0.029 | 0.005 | -0.019 | -0.044 | -0.055 | -0.050 | -0.025 | -0.023 | -0.021 | -0.021 | -0.017 | -0.02 | |
| 20.444 | 0.029 | 0.021 | 0.001 | -0.025 | -0.050 | -0.060 | -0.056 | -0.032 | -0.030 | -0.029 | -0.027 | -0.025 | -0.03 | |
| 29.944 | 0.013 | 0.005 | -0.014 | -0.041 | -0.064 | -0.078 | -0.074 | -0.052 | -0.048 | -0.046 | -0.046 | -0.046 | -0.05 | |
| 21.444 | -0.089 | -0.093 | -0.108 | -0.130 | -0.149 | -0.163 | -0.163 | -0.147 | -0.143 | -0.137 | -0.133 | -0.12) | -0.12 | |
| | | • • • • • | | | | | ***** | ***** | ***** | | 4 | ~~~~ | 4.1 | |

Table 1.13 Experimental pressure coefficients c_p for α = 10.26°, M_{∞} = 0.95 and Re_D = 6.0 · 10⁵

| | | | | | | Р | | | <u> </u> | | | ь | |
|-------------|----------------------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|-------|
| Coordinates | Polar angle, Φ, deg. | | | | | | | | | | | | |
| X/D | | 19 | 30 | 45 | 60 | 75 | 93 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.744 | 0.262 | 0.697 | 0.639 | 0.562 | 0.478 | 0.402 | 0.346 | 0.275 | 0.268 | 0.254 | 0.240 | 0.23 |
| 0.492 | 0.481 | 0.473 | 0.434 | 0.378 | 0.305 | 0.222 | 0.150 | 0.073 | 0.041 | 0.309 | -0.009 | -0.024 | -0.02 |
| 0.731 | 0.248 | 0.239 | 0.198 | 0.146 | 0.001 | 0.009 | -0.065 | -0.117 | -0.153 | -0.176 | -0.183 | -0.198 | -0.19 |
| 0.980 | 0.005 | -0.009 | -0.046 | -0.091 | -0.154 | -0.228 | -0.283 | -0.327 | -0.364 | -0.383 | -C.387 | -0.394 | -0.39 |
| 1.238 | -0.220 | -0.228 | -0.261 | -0.306 | -0.365 | -0.428 | -0.483 | -0.516 | -0.542 | -0.557 | -0.561 | -0.561 | -0.55 |
| 1.500 | -2.313 | -0.324 | -0.353 | -0.395 | -0.446 | -0.502 | -0.549 | -0.533 | -9.605 | -0.605 | -0.602 | -0.594 | -0.59 |
| 1.744 | -0.224 | -0.231 | -0.261 | -0.306 | -0.361 | -0.417 | -0.454 | -0.411 | -0.446 | -0.363 | -0.317 | -0.253 | -0.24 |
| 2.444 | -0.109 | -0.183 | -0.179 | -0.246 | -0.057 | -0.046 | -0.043 | -0.043 | -0.013 | -0.009 | 0.009 | 0.031 | 0.04 |
| 2.944 | 0.067 | 0.067 | 0.040 | 0.017 | -0.020 | -0.046 | -0.061 | -0.035 | -0.009 | 0.309 | 0.028 | 0.047 | 0.06 |
| 3.444 | 0.052 | 0.051 | 0.028 | -0.002 | -0.035 | -0.061 | -0.072 | -0.046 | -0.024 | -0.009 | -0.002 | 0.024 | 0.03 |
| 9.944 | 0.045 | 0.041 | 0.020 | -0.009 | -0.043 | -0.068 | -0.076 | -0.054 | -0.028 | -0.017 | -0.020 | 0.009 | 0.02 |
| 4.444 | 0.041 | 0.036 | 0.013 | -0.017 | -0.046 | -0.072 | -0.076 | -0.057 | -0.028 | -0.020 | -0.032 | 0.002 | 0.02 |
| 4.944 | 0.039 | 6.033 | 0.009 | -0.020 | -0.050 | -0.072 | -0.076 | -0.057 | -0.028 | -0.020 | -0.035 | -0.006 | 0.01 |
| 5.444 | 0.041 | 0.032 | 0.013 | -0.017 | -0.046 | -0.072 | -0.072 | -0.054 | -0.028 | -0.020 | -0.035 | -0.013 | 0.00 |
| 5.944 | 0.040 | 0.033 | 0.013 | -0.017 | -0.046 | -0.068 | -0.072 | -0.050 | -0.024 | -0.020 | -0.028 | -0.017 | 0.00 |
| 6.444 | 0.039 | 0.031 | 0.009 | -0.020 | -0.050 | -0.068 | -0.072 | -0.046 | -0.024 | -0.020 | -0.028 | -0.024 | -0.00 |
| 6.944 | 0.043 | 0.035 | 0.013 | -0.017 | -0.043 | -0.065 | -0.065 | -0.043 | -0.024 | -0.017 | -0.020 | -0.020 | -0.00 |
| 7.444 | 0.041 | 0.033 | 0.013 | -0.017 | -0.046 | -0.065 | -0.065 | -0.043 | -0.024 | -0.020 | -0.020 | -0.024 | -0.00 |
| 7.944 | 0.043 | 0.035 | 0.017 | -0.017 | -0.043 | -0.065 | -0.061 | -0.039 | -0.020 | -0.017 | -0.020 | -0.024 | -0.00 |
| 6.444 | 0.341 | 0.033 | 0.013 | -0.017 | -0.046 | -0.065 | -0.061 | -0.039 | -0.020 | -0.017 | -0.020 | -0.024 | -0.01 |
| 8.944 | 0.039 | 0.031 | 0.013 | -0.017 | -0.046 | -0.065 | -0.061 | -0.035 | -0.023 | -0.017 | -0.020 | -0.024 | -0.00 |
| 9.444 | 0.041 | 0.031 | 0.009 | -0.024 | -0.050 | -0.072 | -0.072 | -0.043 | -0.024 | -0.024 | -0.028 | -0.039 | -0.02 |
| 9.944 | 0.037 | 0.028 | 0.009 | -0.020 | -0.046 | -0.065 | -0.061 | -0.035 | -0.020 | -0.020 | -0.020 | -0.024 | -0.01 |
| 13.444 | 0.042 | 0.033 | 0.013 | -0.015 | -C.042 | -0.058 | -0.056 | -0.C32 | -0.019 | -0.015 | -0.017 | -0.019 | -0.01 |
| 10.944 | 0.043 | 0.035 | 0.017 | -0.012 | -0.040 | -0.057 | -0.054 | -0.030 | -0.019 | -0.015 | -0.015 | -0.013 | -0.00 |
| 11.444 | 0.043 | 0.034 | 0.013 | -0.015 | -0.042 | -0.058 | -0.055 | -0.030 | -0.021 | -0.019 | -0.017 | -0.021 | -0.CI |
| 11.944 | 0.039 | 0.030 | 0.009 | -0.017 | -0.043 | -0.060 | -0.055 | -0.030 | -0.021 | -0.017 | -0.019 | -0.021 | -0.01 |
| 12.444 | 0.039 | 0.032 | 0.013 | -0.017 | -0.042 | -0.058 | -0.058 | -0.028 | -0.019 | -0.015 | -0.015 | -0.015 | -0.00 |
| 12.944 | 0.243 | 0.033 | 0.013 | -0.014 | -0.040 | -0.055 | -0.051 | -0.027 | -0.019 | -0.013 | -0.013 | -0.012 | 0.00 |
| 13.444 | 0.038 | 0.029 | 0.013 | -0.017 | -0.042 | -0.057 | -0.051 | -0.027 | -0.019 | -0.015 | -0.015 | -0.017 | -0.00 |
| 13.944 | 0.043 | 0.030 | 0.013 | -0.015 | -0.042 | -0.057 | -0.049 | -0.025 | -0.019 | -0.015 | -0.015 | -0.017 | -0.00 |
| 14.444 | 0.028 | 0.028 | 0.028 | -0.015 | -C.040 | +0.056 | -0.048 | -0.025 | -0.019 | -0.015 | -0.016 | -0.016 | -0.00 |
| 14.944 | 0.043 | 0.030 | 0.013 | -0.015 | -0.038 | -0.055 | -0.047 | -0.025 | -0.019 | -0.015 | -0.017 | -0.015 | -0.00 |
| 15.444 | 0.039 | 0.029 | 0.013 | -0.015 | -0.038 | -0.053 | -0.047 | -0.023 | -0.017 | -0.015 | -0.013 | -0.013 | -0.CO |
| 15.944 | 0.039 | 0.029 | 0.013 | -0.015 | -0.038 | -0.053 | -0.045 | -0.023 | -0.017 | -0.015 | -0.015 | -0.015 | -0.00 |
| 16.444 | 0.035 | 0.029 | 0.009 | -0.000 | -0.019 | -0.030 | -0.025 | -0.006 | -0.004 | -0.002 | -0.002 | -0.000 | 0.00 |
| 16.944 | 0.039 | 0.031 | 0.013 | -0.004 | -0.021 | -0.034 | -0.027 | -0.010 | -0.008 | -0.006 | -0.006 | -0.0 % | -0.00 |
| 17.444 | 0.034 | 0.028 | 0.009 | -0.017 | -0.038 | -0.053 | -0.045 | -0.021 | -0.017 | -0.015 | -0.015 | -0.0 | -0.01 |
| 17.944 | 0.036 | 0.028 | 0.009 | -0.015 | -0.038 | -0.051 | -0.044 | -0.021 | -0.017 | -0.015 | -0.015 | -0.015 | -0.01 |
| 18.444 | 0.033 | 0.028 | 0.009 | -0.017 | -0.040 | -0.053 | -0.045 | -0.023 | -0.019 | -0.017 | -0.017 | -0.019 | -0.01 |
| 18.944 | 0.032 | 0.028 | 0.009 | -0.017 | -0.038 | -0.053 | -0.044 | -0.023 | -0.019 | -0.017 | -0.017 | -0.019 | -0.01 |
| 19.444 | 0.033 | 0.028 | 0.009 | -0.015 | -0.036 | -0.051 | -0.044 | -0.021 | -0.019 | -0.017 | -0.019 | -0.021 | -0.01 |
| 19.944 | 0.034 | 0.020 | 0.009 | -0.017 | -0.040 | -0.055 | -0.047 | -0.025 | -0.021 | -0.021 | -0.019 | -0.019 | -0.01 |
| 20.444 | 0.028 | 0.024 | 0.002 | -0.023 | -0.044 | -0.060 | -0.053 | -0.032 | -0.028 | -0.028 | -0.027 | -0.027 | -0.02 |
| 20.944 | 9.017 | 0.013 | 0.000 | -0.034 | -0.059 | -0.073 | -0.072 | -0.051 | -0.047 | -0.047 | -0.047 | -0.049 | -0.04 |
| 21.444 | -0.065 | -0.069 | 0.000 | -0.113 | -0.137 | -0.158 | -0.164 | -0.154 | -0.148 | -0.144 | -0.142 | -0.135 | -0.13 |

Table 1.14 Experimental pressure coefficients c_p for α = 10.28°, M_{∞} = 1.0 and Re_D = 6.1 · 10⁵

| | | | | | | þ | | | ω | | | ט | |
|-------------|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Coordinates | Polar angle, φ, deg. | | | | | | | | | | | | |
| | 9 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 130 |
| 0.251 | 0.782 | 0.510 | 0.740 | 0.683 | 0.608 | 0.527 | 0.459 | 0.394 | 0.348 | 0.322 | 0.308 | 0.293 | 0.29 |
| 0.482 | 0.525 | 0.519 | 0.483 | 0.429 | 0.356 | 0.277 | 0.213 | 0.147 | 0.100 | 0.068 | 0.048 | 0.033 | 0.03 |
| 0.731 | 0.300 | 0.293 | 0.255 | 0.204 | 0.140 | 0.067 | 0.005 | -0.058 | -0.090 | -0.108 | -0.122 | -0.140 | -0.1 |
| 0.780 | 0.359 | 0.249 | 0.016 | -0.026 | -0.087 | -0.157 | -0.207 | -0.260 | -0.291 | -0.306 | -0.312 | -0.318 | -0.3 |
| 1.239 | -0.157 | -0.161 | -0.190 | -0.235 | -0.288 | -0.353 | -0.397 | -0.441 | -0.461 | -0.472 | -0.478 | -0.455 | -0.4 |
| 1.500 | -0.253 | -0.257 | -C.286 | -0.324 | -0.377 | -0.431 | -0.472 | -0.512 | -0.525 | -0.525 | -0.525 | -0.520 | -0.5 |
| 1.944 | -0.192 | -0.186 | -0.215 | -0.257 | -0.309 | -0.367 | -0.401 | -0.423 | -0.408 | -0.369 | -0.330 | -0.303 | -0.2 |
| 2.444 | -0.147 | -0.154 | -0.183 | -0.228 | -0.278 | -0.321 | -0.330 | -0.259 | -0.246 | -0.192 | -0.157 | -0.136 | -0.1 |
| 2.944 | -0.129 | -C.133 | -C.161 | -0.196 | -0.224 | -0.232 | -0.228 | -0.200 | -0.161 | -0.132 | -0.111 | -0.090 | -0.0 |
| 3.444 | -0.080 | -0.087 | -0.108 | -0.136 | -0.161 | -0.183 | -0.182 | -0.157 | -0.129 | -0.111 | -0.130 | -0.079 | -0.0 |
| 3.944 | -0.037 | -0.048 | -0.069 | -0.101 | -0.129 | -0.151 | -0.150 | -0.111 | -0.090 | -0.093 | -0.093 | | |
| 4.444 | 0.049 | | | | | | | | | | | -0.069 | -0.0 |
| | | -0.030 | -0.044 | -0.079 | -0.101 | -0.101 | -O.C83 | -0.012 | -0.009 | -0.726 | -0.040 | -0.012 | 0.0 |
| 4.944 | 0.088 | 0.077 | 0.060 | 0.030 | 0.006 | -0.016 | -0.019 | -0.002 | 0.020 | 0.020 | -0.001 | C.043 | 0.0 |
| 5.444 | 0.093 | 0.086 | 0.064 | 0.039 | 0.009 | -0.016 | -0.016 | 0.002 | 0.023 | 0.027 | -0.002 | 0.036 | 0.0 |
| 5.944 | 0.081 | 0.087 | 0.059 | 0.034 | 0.002 | -0.019 | -0.023 | -0.009 | 0.016 | 0.023 | -0.005 | 0.027 | 0.0 |
| 6.444 | 0.070 | 0.070 | 0.047 | 0.023 | -0.012 | -0.034 | -0.037 | -0.019 | 0.009 | 0.013 | -0.009 | 0.009 | 0.0 |
| 6.944 | 0.063 | 0.063 | 0.039 | 0.016 | -0.019 | -0.041 | -0.044 | -0.026 | -0.002 | 0.006 | -0.005 | 0.005 | 0.0 |
| 7.444 | 0.053 | 0.050 | 0.027 | 0.002 | -0.033 | -0.053 | -0.055 | -0.033 | -0.012 | -0.005 | -0.009 | -0.009 | 0.00 |
| 7.944 | 0.048 | 0.043 | 0.023 | -0.005 | -0.037 | -0.058 | -0.058 | -0.037 | -0.016 | -0.009 | -0.012 | -0.016 | -0.0 |
| 3.444 | 0.043 | 0.034 | 0.016 | -0.016 | -0.044 | -0.065 | -0.062 | -0.037 | -0.019 | -0.016 | -0.019 | -0.026 | -0.0 |
| 5.744 | 0.040 | 0.031 | 0.013 | -0.019 | -0.044 | -0.062 | -0.062 | -0.037 | -0.019 | -0.016 | -0.019 | -0.023 | -0.0 |
| 8.444 | 0.040 | 0.036 | 0.009 | -0.023 | -0.051 | -0.073 | -0.069 | -0.064 | -0.023 | -0.023 | -0.026 | -0.03? | -0.0 |
| 9.944 | 0.036 | 0.028 | 0.009 | -0.019 | -0.048 | -0.065 | -0.062 | -0.033 | -0.019 | -0.016 | -0.019 | -0.023 | -0.0 |
| 10.444 | 0.043 | 0.037 | C.016 | -0.011 | -0.049 | -0.055 | -0.054 | -0.031 | -0.020 | -0.014 | -0.014 | -0.016 | -0.0 |
| 10.744 | 0.045 | 0.038 | 0.020 | -0.009 | -0.036 | -0.054 | -0.052 | -0.029 | -0.020 | -0.314 | -0.016 | -0.311 | -0.0 |
| 11.444 | 0.043 | 0.034 | 0.016 | -0.016 | -0.041 | -0.059 | -0.054 | -0.031 | -0.022 | -2.020 | -0.020 | -0.018 | -0.0 |
| 11.944 | 0.040 | 0.032 | 0.013 | -0.016 | -0.041 | -0.059 | -0.055 | -0.0:1 | -0.022 | -0.018 | -0.021 | -0.020 | -0.0 |
| 12.444 | 0.040 | 0.031 | 0.013 | -0.016 | -0.041 | -0.059 | -0.054 | -0.029 | -0.022 | -0.016 | -0.020 | -0.015 | -0.0 |
| 12.944 | 0.045 | 0.039 | 0.016 | -0.013 | -0.638 | -0.054 | -0.050 | -0.027 | -0.020 | -0.014 | -0.014 | -0.009 | -0.0 |
| 13.444 | 0.039 | 0.031 | 0.013 | -0.014 | -0.039 | -0.056 | -0.050 | -0.027 | -0.018 | -0.014 | -0.014 | -0.013 | -0.00 |
| 13.944 | 0.041 | 0.034 | 0.016 | -0.014 | -0.039 | -0.056 | -0.050 | -0.025 | -0.018 | -0.013 | -0.014 | -0.014 | -0.0 |
| 14.444 | 0.027 | 0.027 | 0.027 | -0.014 | -0.039 | -0.056 | -0.050 | -0.026 | -0.018 | -0.013 | -0.016 | -0.011 | -0.00 |
| 14.944 | 0.040 | 0.035 | 0.016 | -0.013 | -0.039 | -0.056 | -0.050 | -0.027 | -0.018 | -0.014 | | | |
| 15.444 | 0.038 | 0.031 | 0.013 | -0.016 | -0.041 | -0.058 | -0.050 | -0.025 | -0.020 | -0.016 | -0.018 | -0.007 | -0.0 |
| 15.944 | 0.037 | | 0.009 | -0.018 | | | | | | | -0.018 | -0.011 | -0.00 |
| | 0.033 | 0.028 | 0.009 | -0.004 | -0.043 | -0.058 | -0.052 | -0.C27 | -0.022 | -0.016 | -0.020 | -C.018 | -0.00 |
| 15.744 | | | | | -0.023 | -0.034 | -0.030 | -0.009 | -0.007 | -0.005 | -0.005 | -0.004 | 0.00 |
| | 0.035 | 0.027 | 0.009 | -0.009 | -0.627 | -0.040 | -0.034 | -0.013 | -0.009 | -0.009 | -0.009 | -0.004 | -0.00 |
| 17.444 | 0.035 | 0.027 | 0.013 | -0.020 | -0.038 | -0.049 | -0.043 | -0.023 | -0.016 | -0.013 | -0.014 | -0.016 | -0.00 |
| 17.944 | 0.035 | 0.032 | 0.013 | -0.013 | -0.038 | -0.052 | -0.045 | -0.023 | -0.018 | -0.013 | -0.014 | -0.016 | -0.00 |
| 18.444 | 0.033 | 0.029 | 0.009 | -0.016 | -0.041 | -0.056 | -0.047 | -0.023 | -0.018 | -0.014 | -0.016 | -0.016 | -0.01 |
| 18.944 | 0.035 | 0.033 | 0.013 | -0.009 | -0.036 | -0.052 | -0.045 | -0.022 | -0.018 | -0.014 | -0.016 | -0.014 | -0.0 |
| 19.444 | 0.034 | 0.028 | 0.013 | -0.014 | -0.036 | -0.050 | -0.043 | -0.022 | -0.618 | -0.016 | -0.018 | -0.018 | -0.0 |
| 19.944 | 0.038 | 0.029 | 0.013 | -0.018 | -0.039 | -0.054 | -0.046 | -0.023 | -0.020 | -0.016 | -0.018 | -0.016 | -0.00 |
| 20.444 | 0.037 | 0.039 | 0.013 | -0.016 | -0.038 | -0.052 | -0.046 | -0.025 | -0.022 | -0.020 | -0.C20 | -0.022 | -0.01 |
| 20.944 | 0.029 | 0.027 | 0.006 | -0.020 | -0.045 | -0.059 | -0.055 | -0.038 | -0.032 | -0.032 | -0.034 | -0.038 | -0.0 |
| 21.444 | -0.023 | -0.026 | -0.048 | -0.074 | -0.104 | -0.133 | -0.148 | -0.160 | -0.165 | -0.163 | -0.156 | -0.134 | -0.12 |

Table 1.15 Experimental pressure coefficients c_p for α = 10.31°, M_{∞} = 1.1 and Re_D = 6.2 · 10⁵

| | | | | | | Р | | | • | | | - | |
|-------------|--------|--------|--------|--------|--------|----------|-----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar an | gle, Φ, α | leg. | | | | | |
| ¥/D | • | 19 | 50 | 49 | 60 | 79 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.856 | 0.849 | 0.740 | 0.754 | 0.683 | 0.597 | 0.539 | 0.479 | 0.433 | 0.407 | 0.393 | 0.378 | 0.37 |
| 0.452 | 0.607 | 0.595 | 0.483 | 0.510 | 0.439 | 0.367 | 0.302 | 0.244 | 0.196 | 0.162 | 0.144 | 0.131 | 0.13 |
| 0.731 | 0.393 | 0.382 | 0.255 | 0.294 | 0.234 | 0.167 | 0.103 | 0.047 | 0.012 | -0.015 | -0.024 | -0.036 | -0.0 |
| 0.980 | 0.163 | 0.154 | 0.016 | 0.077 | 0.018 | -0.044 | -0.094 | -0.140 | -0.173 | -0.189 | -0.196 | -0.196 | -0.19 |
| 1.238 | -0.038 | -0.048 | -0.190 | -0.117 | -0.170 | -0.226 | -0.272 | -0.3 9 | -0.332 | -0.345 | -0.347 | -0.347 | -0.34 |
| 1.500 | -0.133 | -0.143 | -0.286 | -0.206 | -0.256 | -0.305 | -0.344 | -0.375 | -0.395 | -0.397 | -0.393 | -0.357 | -0.3 |
| 1.944 | -0.087 | -0.094 | -0.215 | -0.163 | -0.213 | -0.259 | -0.295 | -0.312 | -0.309 | -0.279 | -0.248 | -0.222 | -0.2 |
| 2.444 | -0.064 | -0.071 | -0.183 | -0.144 | -0.190 | -0.229 | -0.249 | -0.229 | -0.190 | -0.137 | -0.103 | -0.077 | -0.0 |
| 2.944 | -0.048 | -0.057 | -0.161 | -0.127 | -0.164 | -0.186 | -0.179 | -0.150 | -0.114 | -0.081 | -0.057 | -0.041 | -0.0 |
| 3.444 | -0.031 | -0.038 | -0.108 | -0.094 | -0.124 | -0.143 | -0.140 | -0.117 | -0.074 | -0.067 | -0.051 | -0.034 | -0.01 |
| 3.944 | -0.001 | -0.011 | -0.069 | -0.061 | -0.081 | -0.104 | -0.110 | -0.091 | -0.058 | -0.054 | -0-357 | -0.024 | -0.00 |
| 4.444 | 0.015 | 0.009 | -0.044 | -0.051 | -0.081 | -0.100 | -0.100 | -0.074 | -0.051 | -0.041 | -0.057 | -0.011 | 0.00 |
| 4.944 | 0.015 | 0.009 | 0.060 | -0.051 | -0.074 | -0.090 | -0.084 | -0.061 | -0.041 | -0.034 | -0.054 | -0.011 | 0.00 |
| 5.444 | 0.025 | 0.022 | 0.064 | -0.028 | -0.064 | -0.084 | -0.087 | -0.061 | -0.038 | -0.034 | -0.061 | -0.018 | 0.00 |
| 5.944 | 0.026 | 0.018 | 0.059 | -0.031 | -0.054 | -0.074 | -0.074 | -0.054 | -0.045 | -0.038 | -0.061 | -0.028 | -0.0 |
| 6.444 | 0.034 | 0.033 | 0.047 | -0.021 | -0.064 | -0.087 | -0.087 | -0.064 | -0.041 | -0.038 | -0.057 | -0.038 | -0.0 |
| 6.944 | 0.035 | 0.025 | 0.039 | -0.028 | -0.044 | -0.067 | -0.071 | -0.051 | -0.045 | -0.034 | -0.044 | -0.034 | -0.0 |
| 7.444 | 0.041 | 0.029 | 0.027 | -0.031 | -0.061 | -0.087 | -0.090 | -0.C68 | -0.054 | -0.041 | -0.041 | -0.051 | -0.0 |
| 7.944 | 0.054 | 0.055 | 0.023 | 0.002 | -0.074 | -0.097 | -0.100 | -0.074 | -0.058 | -0.048 | -0-044 | -0.051 | -0.0 |
| 8.444 | 0.012 | 0.009 | 0.016 | -0.054 | -0.111 | -0.130 | -0.123 | -0.037 | -0.068 | -0.261 | -0.054 | -0.071 | -0.0 |
| 8.944 | -0.018 | -0.029 | 0.013 | -0.084 | -0.107 | -0.128 | -0.123 | -0.071 | -0.071 | -0.367 | -0.064 | -0.061 | -0.0 |
| 9.444 | -0.028 | -0.038 | 0.009 | -0.104 | -0.107 | -0.117 | -0.104 | -0.071 | -0.054 | -0.354 | -0.061 | -0.064 | -0.0 |
| 9.944 | -0.001 | -0.008 | 0.009 | -0.054 | -0.064 | -0.C84 | -0.080 | -0.054 | -0.051 | -0.041 | -0.038 | -0.038 | -0.0 |
| 10.444 | 0.022 | 0.012 | 0.016 | -0.034 | -0.054 | -0.075 | -0.077 | -0.054 | -0.040 | -0.045 | -0.038 | -0.033 | -0.0 |
| 10.944 | 0.039 | 0.032 | 0.020 | -0.022 | -0.655 | -0.073 | -0.067 | -0.039 | -0.005 | -0.022 | -0.038 | 0.000 | -0.C |
| 11.444 | 0.025 | 0.018 | 0.016 | -0.040 | -0.032 | -0.043 | -0.037 | -0.012 | -0.020 | -0.008 | -0.010 | -0.015 | 0.0 |
| 11.944 | 0.009 | 0.005 | 0.013 | -0.018 | -0.055 | -0.063 | -0.050 | -0.022 | -0.002 | -0.013 | -0.010 | -0.010 | -0.0 |
| 12.444 | 0.025 | 0.012 | 0.013 | -0.030 | 0.099 | 0.057 | 0.034 | 0.026 | 0.048 | 0.012 | -0.005 | 0.007 | 0.0 |
| 12.944 | 0.167 | 0.166 | 0.016 | 0.112 | 0.044 | 0.025 | 0.028 | 0.247 | 0.051 | 0.048 | 0.035 | 0.051 | 0.0 |
| 13.444 | 0.117 | 0.111 | 0.013 | 0.062 | 0.022 | 0.002 | 0.008 | 0.032 | 0.037 | 0.040 | 0.041 | 0.037 | 0.0 |
| 13.944 | 0.091 | 0.082 | 0.016 | 0.031 | 0.012 | -0.005 | 0.000 | 0.025 | 0.028 | 0.032 | 0.030 | 0.029 | 0.0 |
| 14.444 | 0.025 | 0.029 | 0.027 | 0.025 | -0.003 | -0.021 | -0.015 | 0.010 | 0.011 | 0.020 | 0.025 | 0.019 | 0.0 |
| 14.944 | 0.074 | 0.066 | 0.016 | 0.018 | -0.018 | -0.037 | -0.030 | -0.005 | -0.007 | 0.008 | 0.023 | 0.010 | 0.0 |
| 15.444 | 0.364 | 0.056 | 0.013 | -0.000 | -0.030 | -0.050 | -0.045 | -0-122 | -0.025 | -0.308 | -0.002 | -0.013 | 0.0 |
| 15.944 | 0.055 | 0.047 | 0.009 | -0.008 | -0.055 | -0.075 | -0.068 | -0.040 | -0.040 | -0.028 | -0.025 | -0.032 | -0.0 |
| 16.444 | 0.025 | 0.022 | 0.009 | -0.013 | -0.049 | -0.062 | -0.053 | -0.030 | -0.024 | -0.018 | -0.017 | -0.015 | -0.0 |
| 16.944 | -0.001 | -0.005 | 0.009 | -0.028 | -0.055 | -0.063 | -0.055 | -0.033 | -0.032 | -0.025 | -0.020 | -0.022 | -0.0 |
| 17.444 | -0.318 | -0.025 | 0.013 | -0.064 | -0.075 | -0.092 | -0.085 | -0.050 | -0.047 | -0.052 | -0.045 | -0.052 | -0.0 |
| 17.944 | 0.009 | -0.001 | 0.013 | -0.055 | -0.025 | -0.042 | -0.047 | -0.032 | -0.010 | -0.037 | -0.050 | -0.042 | -0.0 |
| 18.444 | 0.047 | 0.045 | 0.009 | -0.002 | -0.025 | -0.052 | -0.045 | -0.C17 | 0.012 | -0.010 | -0.028 | -0.012 | -9.0 |
| 18.944 | 0.047 | 0.041 | 0.013 | -0.008 | -0.023 | -0.035 | -0.022 | 0.003 | 0.007 | 0.008 | -0.007 | 0.012 | 0.0 |
| 19.444 | 0.044 | 0.039 | 0.013 | -0.002 | -0.027 | -C.037 | -0.020 | 0.003 | -0.010 | 0.012 | 0.015 | 0.015 | 0.0 |
| 19.944 | 0.031 | 0.025 | 0.013 | -0.015 | -0.039 | -0.050 | -0.035 | -0.012 | -0.017 | -0.303 | 0.008 | 0.003 | 0.0 |
| 20.444 | 0.029 | 0.025 | 0.013 | -0.020 | -0.032 | -0.047 | -0.035 | -0.017 | -0.030 | -0.303 | -0.010 | -0.018 | -0.0 |
| 20.944 | 0.027 | 0.018 | 0.006 | -0.030 | -0.057 | -0.067 | -0.057 | -0.033 | -0.045 | -0.030 | -0.023 | -0.018 | -0.0 |
| | 0.012 | | -0.048 | -0.027 | -0.082 | | -0.115 | -0.134 | -0.156 | -0.140 | -0.105 | -0.037 | |
| 21.444 | 0.012 | 0.012 | -0.048 | -0.027 | -0.044 | -0.103 | -4.113 | -0.134 | -0.130 | -0.140 | -0.105 | -0.082 | -0.06 |

Table 1.16 Experimental pressure coefficients c_p for α = 10.33°, M_{∞} = 1.2 and Re_D = 6.3 · 10⁵

| 0.251 | Coordinates | | | | | | Polar ar | ngle, Φ, | deg. | | | | | |
|--|-------------|--------|--------|--------|--------|--------|----------|----------|-------|-------|-------|-------|-------|-------|
| 0.492 0.493 0.498 0.503 0.595 0.484 0.248 0.394 0.294 0.296 0.295 0.203 0.295 0.295 0.293 0.193 0.299 0.211 0.175 0.197 0.201 0.199 0.104 0.000 0.093 0.019 0.201 0.200 0.093 0.299 0.211 0.175 0.197 0.017 0.001 0.000 0.093 0.002 0.003 0.009 0.003 0.007 0.009 0.003 0.007 0.001 0.009 0.003 0.007 0.007 0.001 0.002 0.003 0.007 0.002 0.003 0.007 0.001 0.002 0.003 0.007 0.001 | 8/0 | 0 | 15 | 30 | 45 | 60 | 75 | .90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.731 | Q.251 | 0.897 | 0.886 | 0.850 | 0.796 | 0.729 | 0.637 | 0.580 | 0.518 | 0.473 | 0.446 | 0.430 | 0.419 | 0.41 |
| 0.219 0.211 0.175 0.137 0.073 0.017 -0.028 -0.057 -0.163 -0.113 -0.116 -0.116 -0.117 -0.18 -0.215 -0.261 -0.267 -0.261 -0.267 -0.28 -0.261 -0.261 -0.267 -0.28 -0.261 -0.261 -0.267 -0.28 -0 | 0.482 | 0.646 | 0.636 | 0.503 | 0.555 | 0.484 | 0.410 | | 0.3.6 | | 0.213 | | 0.183 | 0.19 |
| 1.238 | 0.731 | | 0.428 | 0.392 | 0.344 | | 0.219 | | | | | | | 0.01 |
| \$\frac{1}{2}.920 | 0.930 | | | 0.175 | 0.137 | 0.079 | 0.017 | | | | | | | -0.11 |
| \$.444 | | | | | | | | | | | | | | -0.26 |
| 2.944 | 1.500 | | | | | | | | | | | | | -0.30 |
| 2,944 | | | | | | | | | | | | | | -0.17 |
| 3.444 | | -0.034 | -0.043 | -0.075 | -0.110 | | | | | | | | | -0.07 |
| 3.44 | | | | | | | | | | | | | | -0.03 |
| 4.944 4.944 0.001 -0.002 -0.015 -0.062 -0.091 -0.109 -0.112 -0.608 -0.053 -0.053 -0.059 -0.031 -0.05 5.944 0.001 0.004 -0.025 -0.037 -0.075 -0.097 -0.097 -0.072 -0.059 -0.055 -0.036 -0.040 -0.05 5.944 0.010 0.004 -0.025 -0.037 -0.075 -0.097 -0.097 -0.072 -0.059 -0.055 -0.038 -0.040 -0.06 5.944 0.023 0.023 -0.012 -0.040 -0.078 -0.109 -0.103 -0.631 -0.053 -0.057 -0.062 -0.034 -0.06 6.944 0.020 0.010 -0.066 -0.053 -0.066 -0.087 -0.084 -0.033 -0.037 -0.037 -0.062 -0.034 -0.06 6.944 0.020 0.010 -0.066 -0.053 -0.066 -0.087 -0.087 -0.062 -0.031 -0.050 -0.044 -0.07 7.944 0.023 0.027 -0.017 -0.037 -0.050 -0.072 -0.072 -0.043 -0.034 -0.033 -0.054 -0.08 5.944 0.020 0.010 -0.066 -0.053 -0.066 -0.087 -0.087 -0.062 -0.031 -0.024 -0.064 7.944 0.022 0.023 0.004 -0.037 -0.053 -0.062 -0.075 -0.043 -0.034 -0.023 -0.034 -0.064 8.944 0.040 0.033 0.007 -0.006 -0.053 -0.002 -0.065 -0.043 -0.034 -0.033 -0.034 -0.043 9.944 0.040 0.033 0.007 -0.006 -0.053 -0.002 -0.065 -0.043 -0.034 -0.034 -0.054 -0.04 9.944 0.040 0.035 0.032 0.001 -0.018 -0.056 -0.069 -0.075 -0.036 -0.037 -0.035 -0.034 -0.025 -0.034 -0.025 0.032 0.001 -0.018 -0.056 -0.069 -0.075 -0.034 -0.037 -0.055 -0.034 -0.025 -0.034 -0.025 11.944 0.024 0.035 0.032 0.001 -0.018 -0.056 -0.069 -0.075 -0.034 -0.025 -0.035 - | | | | | | | | | | | | | | -0.02 |
| 4.944 | | | | | | -0.085 | | | | | | | | -0.00 |
| 5.444 | | | | | | | | | | | | | | -c.00 |
| 5.944 | | | | | | | | | | | | | | -0.0 |
| 6.944 | | | | | | | | | | | | | | |
| 6.94 | | | | | | | | | | | | | | -0.00 |
| 7.444 | | | | | | | | | | | | | | |
| 7.94 | | | | | | | | | | | | | | |
| 8.444 | | | | | | | | | | | | | | |
| 8.94 | | | | | | | | | | | | | | |
| 9.444 0.035 0.032 0.001 -0.028 -0.062 -0.075 -0.036 -0.036 -0.037 -0.037 -0.036 -0.029 -0.012 -0.028 -0.062 -0.075 -0.062 -0.034 -0.025 -0.012 -0.025 -0.012 -0.028 -0.025 -0.012 -0.037 | | | | | | | | | | | | | | |
| 9.944 0.035 0.032 0.001 -0.028 -0.062 -0.073 -0.062 -0.014 -0.025 -0.018 -0.025 -0.012 -0.0 10.444 0.024 0.023 0.016 -0.019 -0.044 -0.047 -0.017 -0.017 -0.017 -0.015 -0.019 -0.01 11.444 0.027 0.028 0.048 -0.030 0.046 -0.001 -0.003 0.010 0.015 0.018 0.020 0.037 0.0 11.444 0.126 0.111 0.099 0.038 0.016 -0.014 -0.022 -0.044 -0.015 0.018 0.020 0.037 0.0 11.444 0.126 0.111 0.099 0.038 0.016 -0.014 -0.022 -0.004 -0.003 0.016 0.015 0.018 0.020 0.037 0.0 12.444 0.076 0.079 0.048 0.029 -0.023 -0.057 -0.050 -0.055 -0.025 -0.019 -0.011 -0.007 -0.009 -0.0 12.444 0.076 0.079 0.030 0.021 -0.043 -0.088 -0.055 -0.025 -0.019 -0.011 -0.007 -0.009 -0.0 13.444 0.024 0.016 -0.015 -0.031 -0.067 -0.087 -0.085 -0.055 -0.025 -0.019 -0.011 -0.001 -0.01 13.444 0.024 0.025 0.024 -0.029 -0.062 -0.075 -0.065 -0.055 -0.025 -0.019 -0.011 -0.001 -0.01 14.444 0.024 0.025 0.024 -0.029 -0.062 -0.075 -0.065 -0.034 -0.027 -0.027 -0.022 -0.026 -0.017 -0.0 14.444 0.036 0.036 0.023 0.002 -0.068 -0.055 -0.055 -0.034 -0.027 -0.022 -0.026 -0.017 -0.0 14.444 0.036 0.036 0.024 -0.029 -0.062 -0.075 -0.065 -0.034 -0.027 -0.022 -0.026 -0.017 -0.0 15.444 0.036 0.036 0.024 -0.029 -0.062 -0.075 -0.065 -0.034 -0.027 -0.022 -0.026 -0.017 -0.0 15.444 0.036 0.036 0.023 0.002 -0.064 -0.007 -0.065 -0.034 -0.027 -0.022 -0.022 -0.022 -0.022 -0.022 -0.022 -0.022 -0.022 -0.022 -0.022 -0.024 -0.029 -0.065 -0.055 -0.034 -0.007 -0.005 -0.005 -0.017 -0.016 -0.017 -0.016 -0.027 -0.025 -0.044 -0.017 -0.015 -0.022 -0.022 -0.022 -0.022 -0.022 -0.022 -0.024 -0.029 -0.065 -0.055 -0.034 -0.007 -0.005 - | | | | | | | | | | | | | | -0.0. |
| 10.444 | | | | | | | | | | | | | | |
| 10.944 | | | | | | | | | | | | | | |
| 11.444 | | | | | | | | | | | | | | |
| 11.944 | | | | | | | | | | | | | | |
| 12.444 | | | | | | | | | | | | | | |
| 12.944 | | | | | | | | | | | | | | |
| 13.444 | | | | | | | | | | | | | | |
| 13.944 | | | | | | | | | | | | | | |
| 14.444 | | | | | | | | | | | | | | |
| \$\begin{array}{llllllllllllllllllllllllllllllllllll | | | | | | | | | | | | | | |
| 15.444 0.046 0.047 0.027 0.014 0.027 0.027 0.023 0.005 0.019 0.015 0.022 0.022 0.027 0.006 15.946 0.034 0.031 0.016 0.027 0.027 0.027 0.025 0.003 0.005 0.005 0.005 0.018 0.06 16.444 0.034 0.028 0.004 0.004 0.004 0.007 0.027 0.023 0.006 0.003 0.005 0.006 0.007 0.006 16.944 0.087 0.092 0.073 0.008 0.007 0.006 0.007 0.006 0.007 0.006 0.023 0.005 0.021 0.007 0.006 0.023 0.021 0.059 0.021 0.059 0.058 0.074 0.035 0.005 0.006 0.003 0.012 0.068 17.444 0.070 0.060 0.023 0.013 0.021 0.031 0.060 0.028 0.024 0.059 0.058 0.034 0.031 0.030 0.021 0.031 0.038 0.021 0.088 0.036 0.031 0.030 0.031 0.033 0.021 0.031 0.021 0.031 0.059 0.058 0.035 0.035 0.031 0.030 0.031 0.033 0.021 0.031 0. | | | | | | | | | | | | | | |
| 15.944 | | | | | | | | | | | | | | |
| 16.944 0.034 0.028 0.004 0.004 -0.004 -0.027 -0.023 -0.006 -0.003 -0.005 -0.006 -0.007 -0.0 16.944 0.087 0.092 0.073 0.008 0.007 -0.020 -0.017 -0.004 -0.009 -0.003 -0.006 -0.009 -0.014 -0.0 187.444 0.070 0.080 0.023 0.021 -0.059 -0.085 -0.074 -0.035 -0.015 -0.006 -0.009 -0.012 0.0 187.444 0.001 -0.002 0.013 -0.021 -0.031 -0.086 -0.058 -0.058 -0.058 -0.058 -0.031 - | | | | | | | | | | | | | | |
| 16.944 | | | | | | | | | | | | | | |
| 87.944 0.023 0.013 -0.021 -0.034 -0.056 -0.058 -0.074 -0.015 -0.006 -0.030 -0.031 -0.038 -0.08 -0.08 -0.08 -0.08 -0.09 -0.08 - | 16.444 | | | | | | | | | | | | | |
| 87.944 | | | | | | | | | | | | | | |
| 18.944 | 87.444 | | | | | | | | | | | | | |
| 18.944 | | | | | | | | | | | | | | |
| 19.444 | | | | | | | | | | | | | | |
| 19-344 | | | | | | | | | | | | | | |
| 20.444 | | | | | | | | | | | | | | |
| 20.944 0.024 0.025 0.023 -0.014 -0.044 -0.055 -0.055 -0.022 -0.006 -0.011 -0.006 -0.011 0.0 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | -0.0 |

Table 1.17 Experimental pressure coefficients c_p for α = 15.31°, M_{∞} = 0.7 and Re_D = 5.2 · 10⁵

| | | | | | | Р | | | | | | ь | |
|-------------|--------|--------|--------|--------|--------|-----------|-----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | 1 | Polar ang | le, Φ, de | eg. | | | | | |
| K/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 150 | 135 | 150 | 165 | 180 |
| 0.251 | 0.749 | 0.726 | 0.657 | 0.541 | 0,392 | 0.263 | 0.144 | 0.050 | -0.006 | -0.032 | -0.037 | -0.032 | -0.33 |
| 0.482 | 0.504 | 0.482 | 0.413 | 0.304 | 0.176 | 0.041 | -0.070 | -0.155 | -0.218 | -0.240 | -0.255 | -0.255 | -0.24 |
| C.731 | 0.283 | 0.257 | 0.192 | 0.087 | -0.027 | -0.149 | -0.256 | -0.329 | -0.365 | -0.378 | -0.367 | -9.350 | -0.34 |
| 0.980 | 0.073 | 0.045 | -0.011 | -0.107 | -0.218 | -0.329 | -0.405 | -0.457 | -0.478 | -0.468 | -0.446 | -0.425 | -0.41 |
| 1.238 | -0.048 | -0.075 | -0.133 | -0.219 | -0.308 | -0.398 | -0.448 | -0.457 | -0.462 | -0.431 | -0.372 | -0.343 | -C.32 |
| 1.500 | -0.112 | -0.137 | -0.186 | -0.261 | -0.340 | -0.403 | -0.432 | -0.430 | -0.353 | -0.336 | -0.277 | -0.234 | -0.22 |
| 1.944 | 0.032 | 0.016 | -0.037 | -0.107 | -0.176 | -0.234 | -0.256 | -C.239 | -0.166 | -0.123 | -0.069 | -0.03. | -0 |
| 2.444 | 0.053 | 0.037 | -0.011 | -0.086 | -0.154 | -0.207 | -0.224 | -0.202 | -0.149 | -0.080 | -0.038 | -0.011 | 0.0 |
| 2.944 | 0.065 | 0.049 | 0.005 | -0.064 | -0.138 | -C.191 | -0.208 | -0.131 | -0.117 | -0.064 | -0.038 | -0.016 | 0.03 |
| 3.444 | 0.069 | 0.050 | 0.005 | -0.064 | -0.133 | -0.186 | -0.182 | -0.165 | -0.076 | -0.064 | -0.059 | -0.032 | 0.02 |
| 3.944 | 0.073 | 0.055 | 0.016 | -0.054 | -0.123 | -0.175 | -0.161 | -0.149 | -0.075 | -0.059 | -0.080 | -0.043 | C. C. |
| 4.444 | 0.075 | 0.056 | 0.016 | -0.054 | -0.128 | -0.170 | -0.181 | -0.133 | -0.064 | -0.054 | -0.076 | -0.053 | 0.01 |
| 4.944 | 0.075 | 0.057 | 0.016 | -0.054 | -0.122 | -0.170 | -0.171 | -0.117 | -0.059 | -0.048 | -0-091 | -0.06 | -0.00 |
| 5.444 | 0.079 | 0.059 | 0.016 | -0.053 | -0.117 | -0.163 | -0.165 | -0.106 | -0.059 | -0.043 | -0.059 | -9.075 | -0-01 |
| 5.964 | 0.079 | 0.061 | 0.021 | -0.048 | -0.117 | -0.159 | -0.160 | -0.096 | -0.053 | -0.043 | -0.054 | -0.075 | -0.02 |
| 6.444 | 0.078 | 0.060 | 0.016 | -0.048 | -0.117 | -0.154 | -0.155 | -0.090 | -0.053 | -0.043 | -0.053 | -C.074 | -0.03 |
| 6.944 | 0.092 | 0.064 | 0.021 | -0.048 | -0.112 | -0.149 | -0.144 | -0.080 | -0.048 | -0.043 | -0.048 | -0.064 | -0.0 |
| 7.444 | 0.082 | 0.061 | 0.021 | -0.048 | -0.112 | -0.142 | -0.139 | -0.075 | -0.048 | -0.043 | -0.043 | -0.059 | -0.0 |
| 7.944 | 0.082 | 0.064 | 0.021 | -0.043 | -0.106 | -0.144 | -0.139 | -0.069 | -0.048 | -0.038 | -0.043 | -0.049 | -0.02 |
| 8.444 | 0.081 | 0.062 | 0.021 | -0.048 | -0.107 | -0.144 | -0.133 | -0.064 | -0.048 | -0.038 | -0.043 | -0.048 | -0-02 |
| 8.944 | 0.083 | 0.061 | 0.021 | -0.048 | -0.107 | -0.144 | -0.128 | -0.059 | -0.043 | -0.039 | -0.038 | -0.043 | -0.02 |
| 9. 944 | 0.080 | 0.059 | 0.016 | -0.053 | -0.117 | -0.149 | -0.139 | -0.164 | -0.048 | -0.043 | -0.043 | -0.059 | -0.03 |
| 9.744 | 0.078 | 0.059 | 0.021 | -0.048 | -0.107 | -0.138 | -0.123 | -0.053 | -0.043 | -0.032 | -0.003 | -0.043 | -0.01 |
| 10.444 | 0.081 | 0.063 | 0.021 | -0.044 | -0.103 | -0.129 | -0.119 | -0.049 | -0.041 | -0.032 | -0.036 | -0.038 | -0.01 |
| 10.744 | 0.083 | 0.064 | 0.021 | -C.041 | -0.100 | -0.127 | -0.114 | -0.544 | -0.038 | -0.02a | -0.033 | -0.03 | -0.00 |
| 11.444 | 0.083 | 0.063 | 0.021 | -0.044 | -0.103 | -0.127 | -0.114 | -0.041 | -0.038 | -0.030 | -0.036 | -0.044 | -0.01 |
| 11.944 | 0.080 | 0.085 | 0.021 | -0.046 | -0.103 | -0.129 | -0.111 | -0.044 | -0.036 | -0.028 | -0.036 | -0.044 | -0.0 |
| 12.444 | 0.079 | 0.061 | 0.021 | -0.044 | -0.100 | -0.127 | -0.108 | -0.038 | -0.036 | -0.028 | -0.033 | -0.041 | -0.01 |
| 12.944 | 2.083 | 0.062 | 0.021 | -0.044 | -0.100 | -0.124 | -0.106 | -0.036 | -0.033 | -0.028 | -0.033 | -0.03 | -0.01 |
| 13.446 | 0.077 | 10000 | 0.021 | -0.044 | -0.100 | -0.121 | -0.103 | -0.036 | -0.036 | -0.028 | -0.036 | -0.041 | -0.0 |
| 13.944 . | 0.079 | 0.063 | 0.021 | -0.044 | -0.097 | -0.119 | -0.103 | -0.035 | -0.036 | -0.028 | -0.033 | -0.03 | -0.0 |
| 14.444 | 0.037 | 0.037 | 0.037 | -0.042 | -0.096 | -0.117 | -0.106 | -0.036 | -0.034 | -0.329 | -0.034 | -0.037 | -0.02 |
| 14.944 | 0.073 | 0.062 | 0.021 | -0.041 | -0.095 | -C.116 | -0.109 | -0.036 | -0.033 | -0.030 | -0.036 | -0.036 | -0.93 |
| 15.444 | 0.078 | 0.061 | 0.021 | -0.041 | -0.095 | -0.113 | -0.103 | -0.036 | -0.033 | -0.028 | -5.030 | -0.036 | -0.0 |
| 15.944 | 0.078 | 0.060 | 0.021 | -0.041 | -0.095 | -0.111 | -0.100 | -0.036 | -0.033 | -0.030 | -0.033 | -0.038 | -0.03 |
| 16.444 | 0.073 | 0.059 | 0.021 | -0.020 | -0.060 | -0.076 | -0.065 | -0.017 | -0.014 | -0.012 | -0.011 | -0.017 | -0.0 |
| 16.944 | 0.077 | 0.061 | 0.021 | -0.022 | -0.062 | -0.078 | -0.068 | -0.022 | -0.017 | -0.020 | -0.017 | -0.022 | -0.0 |
| 17.444 | 0.073 | 0.058 | 0.021 | -0.044 | -0.092 | -0.113 | -0.103 | -0.044 | -0.036 | -0.038 | -0.036 | -0.033 | -0.0 |
| 17.944 | 0.075 | 0.058 | 0.021 | -0.041 | -0.072 | -0.111 | -0.103 | -0.046 | -0.036 | -0.041 | -0.036 | -0.038 | -0.0 |
| 18.444 | 0.071 | 0.055 | 0.016 | -0.044 | -0.095 | -0.113 | -0.108 | -0.049 | -0.036 | -0.341 | -0.038 | -0.044 | -0.0 |
| 18.744 | 0.368 | 0.052 | 0.016 | -7.046 | -0.095 | -C.113 | -0.114 | -0.054 | -0.038 | -0.044 | -0.041 | -0.044 | -0.0 |
| 19.444 | 0.067 | 0.052 | 0.016 | -0.044 | -0.092 | -0.116 | -0.108 | -0.060 | | | | | |
| 19.944 | 0.065 | 0.050 | 0.010 | -0.049 | -0.097 | -0.122 | | | -0.041 | -0.052 | -0.044 | -0.04 | -0.0 |
| 20.444 | | 0.050 | | | | | -0.117 | -0.055 | -0.044 | -2.055 | -0.046 | -0.046 | -0.04 |
| | 0.057 | | 0.005 | -0.057 | -0.106 | -0.127 | -0.125 | -0.076 | -0.052 | -0.063 | -0.052 | -0.054 | -0.04 |
| 20.944 | 0.037 | 0.026 | -0.016 | -0.073 | -0.122 | -0.146 | -0.144 | -0.095 | -0.068 | -0.079 | -0.071 | -0.07 | -0.06 |
| 21.444 | 0.095 | -0.101 | -0.122 | -0.156 | -0.186 | -0.197 | -0.197 | -0.155 | -0.148 | -0.146 | -0.140 | -0.135 | -0.13 |

Table 1.18 Experimental pressure coefficients c_p for α = 15.38°, M_{∞} = 0.8 and Re_D = 5.6 · 10⁵

| Coordinates | | | | | 1 | Polar ang | le, φ, d | eg. | | | | | Land or |
|-------------|--------|--------|--------|--------|--------|-----------|----------|--------|--------|--------|--------|--------|---------|
| X/0 | • | 15 | 30 | 49 | 60, | 79 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 9.786 | 0.762 | 0.322 | 0.579 | 0.432 | 0.304 | 0.186 | 0.0-3 | 0.033 | 0.002 | -0.007 | 0.002 | -0.00 |
| 0.482 | 0.532 | 0.510 | 0.441 | 0.335 | 0.205 | 0.070 | -0.043 | -0.149 | -0.199 | -0.230 | -0.243 | -0.247 | -0.23 |
| 0.731 | 0.300 | 0.276 | 0.208 | 0.107 | -0.016 | -0.141 | -0.248 | -0.332 | -0.378 | -0.400 | -0.386 | -0.375 | -0.37 |
| 0.780 | 0.069 | 0.042 | -0.016 | -0.114 | -0.230 | -0.351 | -0.435 | -0.519 | -0.543 | -0.547 | -0.529 | -0.509 | -0.50 |
| 1.238 | -0.278 | -0.109 | -0.167 | -0.248 | -0.356 | -0.449 | -0.515 | -0.550 | -0.530 | -0.497 | -0.417 | -0.380 | -0.36 |
| 1.500 | -0.163 | -0.181 | -0.234 | -0.306 | -0.391 | -0.466 | -0.489 | -0.474 | -0.423 | -0.360 | -0.297 | -0.251 | -0.23 |
| 1.944 | 0.020 | 0.002 | -0.047 | -0-118 | -0.190 | -0.248 | -0.266 | -0.247 | -0.190 | -0.127 | -0.069 | -0.038 | -0.02 |
| 2.444 | 0.047 | 0.033 | -0.016 | -0.087 | -0.159 | -0.217 | -0.230 | -0.207 | -0.145 | -0.383 | -0.043 | -0.016 | 0.01 |
| 2.744 | 0.060 | 0.046 | -0.002 | -0.069 | -0.141 | -0.199 | -0.212 | -0.181 | -0.114 | -0.069 | -0.047 | -0.025 | 0.02 |
| 3.444 | 0.065 | 0.050 | 0.002 | -0.065 | -0.137 | -0.190 | -0.199 | -0.163 | -0.092 | -0.069 | -0.074 | -0.034 | 0.02 |
| 3.744 | 0.071 | 0.055 | 0.011 | -0.056 | -0.128 | -0.131 | -0.190 | -0.145 | -0.078 | -0.065 | -0.095 | -0.042 | 0.07 |
| 4.444 | 0.072 | 0.057 | 0.011 | -0.056 | -0.128 | -0.176 | -0.181 | -0.132 | -0.065 | -0.356 | -0.109 | -0.051 | 0.00 |
| 4.744 | 0.074 | 0.058 | 0.011 | -0.056 | -0.123 | -0.172 | -0.172 | -0.118 | -0.060 | -0.051 | -0.096 | -0.065 | -0.00 |
| 9.444 | 0.078 | 0.060 | 0.015 | -0.052 | -0.119 | -0.168 | -0.163 | -0.105 | -0.060 | -0.051 | -0.078 | -0.074 | -0.02 |
| 5.744 | 0.078 | 0.062 | 0.015 | -0.051 | -0.119 | -0.163 | -0.158 | -0.096 | -0.056 | -0.051 | -0.060 | -0.078 | -0.02 |
| 6.444 | 0.078 | 0.061 | 0.015 | -0.051 | -0.119 | -0.163 | -0.158 | -0.091 | -0.056 | -0.051 | -0.056 | -0.074 | -0.03 |
| 6.744 | 0.081 | 0.065 | 0.020 | -0.047 | -0.110 | -0.154 | -0.149 | -0.012 | -0.052 | -0.047 | -0.051 | -0.065 | -0.03 |
| 7.444 | 0.080 | 0.062 | 0.020 | -0.047 | -0.114 | -0.154 | -C.145 | -0.078 | -0.052 | -0.047 | -0.051 | -0.000 | -0.03 |
| 7.944 | 0.082 | 0.065 | 0.020 | -0.043 | -0.110 | -0.150 | -0.141 | -0.074 | -0.041 | -0.047 | -0.047 | -0.051 | -0.02 |
| 8.444 | 0.080 | 0.063 | 0.015 | -0.047 | -0.110 | -0.150 | -0.136 | -0-019 | -0.047 | -0.047 | -0.047 | -0.051 | -0.02 |
| 8.944 | 0.079 | 290.0 | 0.015 | -0.047 | -0.110 | -0.145 | -0.132 | -0.065 | -0.047 | -0.342 | -0.347 | -0.047 | -0.0: |
| 9.444 | 0.080 | 0.060 | 0.015 | -0.051 | -0.119 | -0.154 | -0.141 | -0.069 | -0.051 | -0.051 | -0.051 | -0.060 | -0.03 |
| 9.744 | 0.077 | 0.060 | 0.015 | -0.047 | -0.110 | -0.141 | -0.127 | -0.056 | -0-043 | -0.042 | -0.042 | -0.042 | -0.02 |
| 10.444 | 0.061 | 0.064 | 0.020 | -0.041 | -0.102 | -0.136 | -0.120 | -0.052 | -0.041 | -0.039 | -0.043 | -0.041 | -0.01 |
| 10.944 | 0.081 | 0.065 | 0.020 | -0.037 | -0.100 | -0.131 | -0.113 | -0-048 | -0.041 | -0.037 | -3.039 | -0.037 | -0.01 |
| 11.444 | 0.082 | 0.065 | 0.020 | -0.041 | -0.102 | -0.134 | -0.116 | -0.046 | -0.041 | -0.041 | -0.041 | -0.045 | -0.02 |
| 11.944 | 0.078 | 0.062 | 0.020 | -0.041 | -0.105 | -0.134 | -0.111 | -0.043 | -0.C39 | -0.039 | -0.043 | -0.045 | -0.02 |
| 12.444 | 0.078 | 0.062 | 0.020 | -0.039 | -0.102 | -0.129 | -0.109 | -0.041 | -0.039 | -0.037 | -0.041 | -0.C41 | -0.01 |
| 12.944 | 9.382 | 0.065 | 0.020 | -0.037 | -0.100 | -0.127 | -0.104 | -0.039 | -0.037 | -0.034 | -0.037 | -0.039 | -0.01 |
| 13.444 | 0.077 | 0.063 | 0.020 | -0.039 | -0.100 | -0.127 | -0.104 | -0.039 | -0.037 | -0.034 | -0.039 | -0.043 | -0.02 |
| 13.744 | 0.080 | 0.065 | 0.020 | -0.039 | -0.098 | -0.125 | -0.102 | -0.039 | -0.037 | -0.034 | -0.039 | -0.041 | -0.02 |
| 14.444 | 0.033 | 0.033 | 0.033 | -0.038 | -0.097 | -0.124 | -0.101 | -0.039 | -0.037 | -0.034 | -0.039 | -0.039 | -0.02 |
| 14.744 | 0.080 | 0.064 | 0.024 | -0.037 | -0.095 | -0.122 | -0.100 | -0.039 | -0.037 | -0.034 | -0.039 | -0.037 | -0.03 |
| 15.444 | 0.079 | 0.062 | 0.024 | -0.039 | -0.095 | -0.118 | -0.095 | -0.037 | -0.034 | -0.034 | -0.637 | -0.037 | -0.03 |
| 15.744 | 0.078 | 0.061 | 0.024 | -0.037 | -0.093 | -0.118 | -0.095 | -0.037 | -0.034 | -0.034 | -0.037 | -0.037 | -0.03 |
| 16.444 | 0.076 | 0.062 | 0.020 | -0.016 | -0.062 | -0.082 | -0.061 | -0.019 | -0.014 | -0.016 | -0.016 | -0.016 | -0.01 |
| 16.944 | 0.078 | 0.064 | 0.024 | -0.019 | -0.062 | -0.082 | -0.066 | -0.023 | -0.019 | -0.021 | -0.021 | -0.021 | -0.0 |
| 17.444 | 0.075 | 0.060 | 0.020 | -0.039 | -0.093 | -0.116 | -0.095 | -0-041 | -0.034 | -0-037 | -0.C37 | -0.039 | -0.03 |
| 17.944 | 0.076 | 0.061 | 0.020 | -0.037 | -0.089 | -0.113 | -0.095 | -0.043 | -0.034 | -0.037 | -0.037 | -0.037 | -0.03 |
| 18.944 | 0.071 | 0.056 | 0.015 | -0.041 | -0.091 | -0.118 | -0.097 | -0.048 | -0.037 | -0.341 | -0.041 | -0.041 | -0.03 |
| 19.444 | 0.073 | 0.057 | 0.020 | -0.039 | -0.089 | -0.116 | -0.098 | -0.050 | -0.037 | -0.041 | -0.041 | -0.043 | -0.C |
| 19.944 | 0.071 | 0.056 | 0.015 | -0.043 | -0.095 | -0.122 | -0.104 | -0.037 | -0.041 | -0.046 | -0.041 | -0.043 | -C-03 |
| 20.444 | 0.063 | 0.049 | 0.011 | -0,050 | -0.100 | -0.127 | -0.111 | -0.064 | -0.048 | -0.050 | -0.048 | -0.050 | -0.04 |
| 20.944 | 0.044 | 0.033 | -0.007 | -0.066 | -0.116 | -0.143 | -0.129 | -0.082 | -0.064 | -0.066 | -0.063 | -0.066 | -0.05 |
| 21.444 | -0.083 | -0.092 | -0.118 | -0.154 | -0.186 | -0.199 | -0.190 | -0.160 | -0.145 | -0.142 | -0.136 | -0-133 | -0.12 |
| 18.444 | 0.074 | 0.059 | 0.020 | -0.039 | -0.093 | -0.110 | -0.097 | -0.046 | -0.037 | -0.039 | -0.039 | -0.041 | -0.03 |

Table 1.19 Experimental pressure coefficients c_p for α = 15.45°, M_{∞} = 0.9 and Re_D = 5.9 · 10⁵

| Coordinates | | | | | | Polar a | ngle, φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| */0 | • | 15 | 30 | 45 | 60 | 75 | 93 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.833 | 0.806 | 0.743 | 0.632 | 0.489 | 0.373 | 0.254 | 0.159 | 0.101 | 0.071 | 0.051 | 0.067 | 0.05 |
| 0.462 | 0.579 | 0.552 | 0.489 | 0.387 | 0.258 | 0.133 | 0.021 | -0.08L | -0.143 | -0.165 | -0.186 | -0.197 | -0.19 |
| 0.731 | 0.342 | 0.313 | 0.249 | 0.151 | 0.029 | -0.059 | -0.198 | -0.25 | -0.333 | -0.353 | -0.350 | -0.343 | -0.34 |
| 0.980 | 0.291 | 0.061 | 0.009 | -0.093 | -0.203 | -0.329 | -0.409 | -0.466 | -0.523 | -0.436 | -0.538 | -0.526 | -0.52 |
| 1.238 | -0.112 | -0.143 | -0.198 | -0.288 | -0.396 | -0.503 | -0.579 | -0.670 | -0.698 | -0.700 | -0.696 | -0.675 | -0.66 |
| 1.500 | -0.283 | -0.303 | -0.354 | -0.430 | -0.529 | -0.609 | -0.685 | -0.7.4 | -0.735 | -0.708 | -0.509 | -C.394 | -0.40 |
| 1.944 | -0.022 | -0.039 | -0.100 | -0.151 | -0.199 | -C.218 | -0.218 | -0.1.2 | -0.132 | -0.068 | -0.026 | 0.013 | 0.03 |
| 2.444 | 0.047 | 0.029 | -0.018 | -0.089 | -0.164 | -0.214 | -0.226 | -0.190 | -0.124 | -0.069 | -0.026 | 0.009 | 0.03 |
| 2.944 | 0.064 | 0.045 | 0.001 | -0.069 | -0.148 | -0.198 | -0.214 | -0.170 | -0.104 | -0.369 | -0.053 | -0.010 | 0.02 |
| 3.444 | 0.069 | 0.051 | 0.005 | -0.065 | -0.136 | -0.186 | -0.199 | -0.155 | -0.085 | -0.069 | -0.077 | -0.030 | 0.01 |
| 3.944 | 0.074 | 0.059 | 0.013 | -0.058 | -0.128 | -0.178 | -0.187 | -0.136 | -0.017 | -0.065 | -0.088 | -0.045 | 0.00 |
| 4.444 | 6.077 | 0.057 | 0.013 | -0.058 | -0.128 | -0.174 | -0.179 | -0.174 | -0.069 | -0.061 | -0.088 | -0.061 | -0.00 |
| 4.544 | 0.078 | 0.057 | 0.017 | -0.054 | -0.128 | -0.170 | -0.175 | -0.112 | -0.065 | -0.057 | -0.081 | -0.091 | -0.01 |
| 5.444 | 0.081 | 0.060 | 0.017 | -0.053 | -0.120 | -0.167 | -0.167 | -0.100 | -0.061 | -0.053 | -0.069 | -0.084 | -0.01 |
| 5.944 | 0.082 | 0.062 | 0.021 | -0.050 | -0.120 | -0.163 | -0.160 | -0.072 | -0.061 | -0.053 | -0.061 | -0.034 | -0.0 |
| 6.444 | 0.080 | 0.061 | 0.017 | -0.050 | -0.120 | -0.162 | -0.155 | -0.088 | -0.057 | -0.249 | -0.057 | -0.080 | -0.03 |
| 4.944 | 0.085 | 0.069 | 0.025 | -0.046 | -0.112 | +0.154 | -0.147 | -0.034 | -0.057 | -0.049 | -0.049 | -0.069 | -0.03 |
| 7.444 | 0.083 | 0.062 | 0.021 | -0.046 | -0.112 | -0.154 | -0.144 | -0.0.0 | -0.057 | -0.049 | -0.045 | -0.065 | -0.03 |
| 7.944 | 0.085 | 0.064 | 0.025 | -0.042 | -0.108 | -0.147 | -0.140 | -0.076 | -0.053 | -0.345 | -0.341 | -0.057 | -0.02 |
| 8.444 | 0.083 | 0.062 | 0.021 | -0.046 | -0-112 | -0.151 | -0.136 | -0.069 | -0.053 | -0.045 | -0.041 | -C.057 | -0.03 |
| 8.944 | 0.082 | 0.060 | 0.021 | -0.046 | -0.112 | -0.147 | -0.132 | -0.059 | -0.053 | -0.045 | -0.038 | -0.049 | -0.03 |
| 9.444 | 0.082 | 0.058 | 0.017 | -0.053 | -0.120 | -0.155 | -C.144 | -0.073 | -0.057 | -0.053 | -0.042 | -0.069 | -0.03 |
| 8.944 | 0.377 | C.058 | 0.017 | -0.046 | -0.112 | -0.147 | -0.124 | -0.061 | -0.053 | -0.045 | -0.034 | -0.049 | -0.02 |
| 10.444 | 0.083 | 0.063 | 0.025 | -0.040 | -0.106 | -0.137 | -0.119 | -0.070 | -0.050 | -0.042 | -0.032 | -0.044 | -0.02 |
| 10.944 | 0.085 | 0.064 | 0.025 | -0.038 | -0.104 | -0.133 | -0.114 | -C.068 | -0.050 | -0.040 | -0.029 | -0.036 | -0.01 |
| 11.444 | 0.084 | 0.062 | 0.025 | -0.042 | -0.108 | -0.135 | -0.113 | -0.066 | -0.050 | -0.044 | -0.030 | -0.044 | -0.02 |
| 11.944 | 0.061 | 0.058 | 0.021 | -0.044 | -0.108 | -0.138 | -0.114 | -0.066 | | | | | |
| 12.444 | 0.082 | 0.060 | 0.021 | -0.043 | -0.106 | -C.134 | -0.112 | -0.066 | -0.048 | -0.042 | -0.032 | -0.042 | -0.03 |
| 12.944 | 0.384 | 0.062 | 0.025 | -0.039 | -0.104 | -0.133 | -0.106 | -0.002 | -0.048 | -0.042 | -0.031 | -0.038 | -0.02 |
| 13.444 | 0.079 | 0.058 | 0.021 | -0.042 | -0.106 | -0.134 | -0.104 | | -0.048 | -2.040 | -0.027 | -0.035 | -U.C2 |
| 13.944 | 0.081 | 0.059 | 0.021 | -0.043 | -0.104 | -0.132 | -0.102 | -0.056 | -0.046 | -0.040 | -0.029 | -0.038 | -0.03 |
| 14.444 | 0.081 | 0.059 | 0.023 | -0.042 | -0.103 | -0.129 | | | | -0.040 | -0.029 | -0.008 | -0.03 |
| 14.944 | 0.061 | 0.059 | 0.025 | -0.041 | -0.102 | -0.127 | -0.101 | -0.054 | -0.045 | -0.340 | -0.032 | -0.037 | -0.03 |
| 15.444 | 0.080 | 0.059 | 0.023 | -0.041 | -0.100 | -0.127 | -0.100 | -0.012 | -0.044 | -0.040 | -0.034 | -0.036 | -0.03 |
| 15.944 | 0.079 | 0.057 | 0.021 | -0.041 | -0.100 | -0.125 | -0.100 | -0.050 | -0.044 | -0.038 | -0.032 | -0.036 | -0.03 |
| 16.444 | 0.075 | 0.056 | 0.017 | -0.021 | -0.066 | -0.088 | -1.096 | -0.050 | -0.042 | -0.040 | -0.034 | -0.036 | -0.04 |
| 16.744 | 0.080 | 0.058 | | -0.023 | | | 0.065 | -0.027 | -0.023 | -0.021 | -0.019 | -0.019 | -0.02 |
| 17.444 | 0.076 | 0.055 | 0.021 | -0.043 | -0.066 | -0.090 | -0.070 | -0.031 | -0.027 | -0.027 | -0.026 | -0.023 | -0.02 |
| 27.944 | | | | | -0.098 | -0.123 | -0.100 | -0.048 | -0.040 | -0.042 | -0.044 | -0.040 | -0.04 |
| | 0.077 | 0.057 | 0.021 | -0.043 | -0.096 | -0.121 | -0.100 | -0.048 | -0.033 | -0.344 | -0.048 | -0.042 | -0.04 |
| 18.444 | 0.074 | 0.055 | 0.017 | -0.045 | -0.098 | -0.123 | -0.104 | -0.050 | -0.040 | -0.944 | -0.052 | -0.046 | -0.04 |
| 16.944 | 0.071 | 0.053 | 0.017 | -0.044 | -0.098 | -0.123 | -0.106 | -0.050 | -0.038 | -0.046 | -0.056 | -0.046 | -0.04 |
| 10.444 | 0.071 | 0.054 | 0.017 | -0.042 | -0.094 | -0.119 | -0.105 | -0.050 | -0.038 | -0.048 | -0.060 | -0.050 | -0.04 |
| 10.944 | 0.072 | 0.055 | 0.013 | -0.048 | -0.098 | -0.127 | -0.:14 | -0.052 | -0.040 | -0.050 | -0.064 | -0.048 | -0.04 |
| 20.444 | 0.065 | 0.049 | 0.009 | -0.052 | -0.104 | -0.131 | -0.122 | -0.060 | -C.046 | -0.058 | -0.072 | -0.056 | -0.05 |
| 20.944 | 0.047 | 0.033 | -0.006 | -0.066 | -0.119 | -0.147 | -0.142 | -0-078 | -0.055 | -0.076 | -0.092 | -0.076 | -0.07 |
| 21.444 | -0.069 | -0.081 | -0.116 | -0.161 | -0.201 | -0.218 | -0.209 | -0.170 | -0.161 | -0.158 | -0.165 | -0.151 | -0.10 |

Table 1.20 Experimental pressure coefficients c_p for α = 15.49°, M_{∞} = 0.95 and Re_D = 6.0 · 10⁵

| Coordinates | | | | | | Polar a | ingle, Φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|---------|-----------|--------|--------|--------|--------|--------|-------|
| 7/0 | 0 | 19 | 30 | 49 | 60 | 79 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.868 | 0.849 | 0.783 | 0.678 | 0.552 | 0.417 | 0.296 | 0.212 | 0.151 | 0.120 | 0.116 | 0.116 | 0.11 |
| 0.482 | 0.616 | 0.598 | 0.532 | 0.434 | 0.312 | 0.181 | 0.064 | -0.020 | -0.083 | -0.117 | -2.127 | -0.143 | -0.13 |
| 0.731 | 0.382 | 0.360 | 0.297 | 0.198 | 0.084 | -0.035 | -0.147 | -0.274 | -0.220 | -0.306 | -0.237 | -0.275 | -0.27 |
| 0.980 | 0.134 | 0.110 | 0.053 | -0.039 | -0.147 | -0.261 | -0.339 | -0.424 | -0.407 | -0.484 | -0.471 | -0.462 | -0.45 |
| 1.238 | -0.034 | -0.106 | -0.161 | -0.250 | -0.350 | -0.458 | -0.554 | -0.609 | -0.639 | -0.643 | -0.622 | -0.614 | -0.60 |
| 1.500 | -0.224 | -0.235 | -0.290 | -0.365 | -0.454 | -0.543 | -0.625 | -0.661 | -0.684 | -0.676 | -0.648 | -0.526 | -0.61 |
| 2.944 | -C.128 | -0.139 | -0.198 | -0.287 | -0.399 | -0.506 | -0.588 | -0.624 | -0.580 | -0.365 | -0.316 | -0.217 | -0.20 |
| 2.444 | -3.106 | -0.128 | -0.190 | -0.287 | -0.399 | -0.480 | -0.113 | -0.135 | -0.095 | -0.065 | -0.009 | 0.041 | 0.08 |
| 2.944 | 0.095 | 0.080 | 0.040 | -0.020 | -0.087 | -0.146 | -0.165 | -0.083 | -0.054 | -0.039 | 0.009 | 0.063 | 0.10 |
| 3.444 | 0.099 | 0.088 | 0.035 | -0.032 | -0.102 | -0.158 | -0.169 | -0.094 | -0.054 | -0.058 | -0.057 | 0.030 | 0.05 |
| 3.744 | 0.093 | 0.080 | 0.029 | -0.039 | -0.109 | -0.158 | -0.169 | -0.102 | -0.061 | -0.054 | -0.116 | 0.005 | 0.02 |
| 4.444 | 0.089 | 0.074 | 0.024 | -0.043 | -0.113 | -0.165 | -0.169 | -0.038 | -0.057 | -0.050 | -0.116 | -0.024 | 0.00 |
| 4.944 | 0.086 | 0.071 | 0.024 | -0.044 | -0.117 | -0.165 | -0.165 | -0.091 | -0.054 | -0.050 | -0.087 | -0.050 | -0.02 |
| 9.444 | 0.088 | 0.070 | 0.024 | -0.046 | -0.113 | -0.158 | -0.158 | -0.063 | -0.054 | -0.050 | -0.072 | -0.065 | -0.03 |
| 5.944 | 0.086 | 0.071 | 0.024 | -0.046 | -0.113 | -0.155 | -0.154 | -0.050 | -0.054 | -0.050 | -0.051 | -0.065 | -0.03 |
| 6.444 | 0.084 | 0.068 | 0.020 | -0.046 | -0.113 | -0.158 | -0.154 | -0.076 | -0.054 | -0.050 | -0.061 | -0.065 | -0.04 |
| 6.744 | 880.0 | 0.072 | 0.028 | -0.043 | -0.109 | -0-150 | -0.146 | -0.059 | -0.050 | -0.046 | -0.054 | -C.058 | -0.03 |
| 7.444 | 0.085 | 0.068 | 0.024 | -0.043 | -0.109 | -0.147 | -0.143 | -0.069 | -0.050 | -0.046 | -0.050 | -0.054 | -0.03 |
| 7.944 | 0.087 | C-071 | 0.028 | -0.039 | -0.106 | -0.143 | -0.135 | -0.061 | -0.046 | -0.043 | -0.050 | -0.045 | -0.02 |
| 8.444 | 0.096 | 0.068 | 0.024 | -0.046 | -0.109 | -0.143 | -0.135 | -0.058 | -0.047 | -0.043 | -0.050 | -0.050 | -0.03 |
| 8.944 | 0.084 | 0.066 | 0.024 | -0.043 | -0.106 | -0.143 | -0.132 | -0.054 | -0.043 | -0.043 | -0.050 | -0.046 | -0.02 |
| 9.444 | 0.085 | 0.067 | 0.020 | -0.050 | -0.113 | -0.150 | -0.143 | -0.058 | -0.047 | -0.050 | -0.057 | -0.064 | -0.03 |
| 9.944 | 0.081 | 0.064 | 0.020 | -0.043 | -0.106 | -0.139 | -0.128 | -0.050 | -0.043 | -0.039 | -0.050 | -0.046 | -0.02 |
| 10.444 | 0.086 | 0.068 | 0.028 | -0.038 | -0.100 | -0.130 | -0.119 | -0.047 | -0.042 | -0.036 | -0.045 | -0.044 | -0.02 |
| 10.944 | 0.087 | 0.070 | 0.028 | -0.036 | -0.096 | -0.124 | -0.115 | -0.043 | -0.040 | -0.036 | -0.043 | -0.040 | -0.01 |
| 11.444 | 0.087 | 0.070 | 0.028 | -0.040 | -0.100 | -0.128 | -0.117 | -0.043 | -0.042 | -0.038 | -0.047 | -0.043 | -0.00 |
| 11.944 | 0.083 | 0.056 | 0.024 | -0.042 | -0.100 | -0.128 | -0.122 | -0.043 | -0.040 | -0.038 | -0.047 | -0.051 | -0.03 |
| 12.444 | 0.063 | 0.066 | 0.024 | -0.040 | -0.100 | -0.126 | -0.111 | -0.042 | -0.040 | -0.036 | -0.045 | -0.047 | -0.0 |
| 12.944 | 0.087 | 0.070 | 0.028 | -0.036 | -0.096 | -0.124 | -0.107 | -0.040 | -0.029 | -0.034 | -0.041 | -0.044 | -0.02 |
| 13.444 | 0.082 | 0.065 | 0.024 | -0.040 | -0.096 | -0.124 | -0.107 | -0.642 | -0.040 | -0.038 | -0.043 | -0.049 | -0.03 |
| 13.944 | 0.083 | 0.067 | 0.024 | -0.040 | -0.098 | -0.122 | -0.107 | -0.042 | -0.040 | -0.036 | -0.043 | -0.049 | -0.03 |
| 14.444 | 0.029 | 0.028 | 0.028 | -0.039 | -0.097 | -0.122 | -0.106 | -0.043 | -0.040 | -0.038 | -0.043 | -0.048 | -0.03 |
| 14.944 | 0.083 | 0.057 | 0.028 | -0.038 | -0.096 | -0.122 | -0.105 | -0.043 | -0.040 | -0.040 | -0.043 | -0.047 | -0.03 |
| 15.444 | 0.082 | 0.067 | 0.026 | -0.040 | -0.096 | -0.120 | -0.102 | -0.045 | -0.040 | -0.040 | -0.039 | -0.045 | -0.63 |
| 15.944 | 0.081 | 0.066 | 0.024 | -0.038 | -0.096 | -0.118 | -0.102 | -0.047 | -0.042 | -0.042 | -0.039 | -0.047 | -0.03 |
| 16.444 | 0.077 | 0.062 | 0.020 | -0.019 | -0.064 | -0.083 | -0.070 | -0.028 | -0.021 | -0.023 | -0.021 | -0.C25 | -0.01 |
| 16.944 | 0.061 | 0.069 | 0.024 | -0.023 | -0.066 | -0.087 | -0.073 | -0.034 | -0.027 | -0.028 | -0.025 | -0.030 | -0.02 |
| | 0.076 | 0.061 | 0.020 | -0.040 | -0.096 | -0.120 | -0.102 | -0.057 | -0.043 | -0.047 | -0.039 | -0.047 | -0.04 |
| 17.444 | 0.078 | | 0.020 | -C.040 | -0.094 | | | -0.057 | -0.043 | -0.049 | -0.040 | -0.047 | -0.04 |
| | 0.076 | 0.062 | 0.017 | -0.044 | -0.098 | -0.117 | -0.102 | -0.062 | -0.047 | -0.053 | -0.041 | -0.049 | -0.04 |
| 18.444 | 0.073 | 0.058 | 0.017 | -0.042 | -0.096 | -0.122 | | -0.064 | -0.047 | -0.053 | -0.041 | -0.049 | -0.04 |
| | | | 0.017 | -0.042 | -0.094 | | -0.102 | | -0.047 | -0.055 | -0.041 | -0.051 | -0.04 |
| 19.444 | 0.073 | 0.058 | | | | -0.120 | -0.102 | -0.066 | | | | | |
| 19.944 | 0.076 | 0.059 | 0.017 | -0.045 | -0.102 | -0.128 | -0.107 | -0.074 | -0.051 | -0.058 | -0.045 | -0.049 | -0.04 |
| 20.444 | 0.070 | 0.054 | 0.009 | -0.049 | -0.105 | -C.134 | -0.115 | -0.081 | -0.059 | -0.066 | -0.053 | -0.057 | -0.05 |
| 20.944 | 0.056 | 0.041 | -0.002 | -0.060 | -0.117 | -0.147 | -0.132 | -0.098 | -0.076 | -0.083 | -0.071 | -0.077 | -0.07 |
| 21.444 | -0.032 | -0.043 | -0.083 | -0.139 | -0.192 | -0.223 | -0.218 | -0.193 | -0.175 | -0.175 | -0.165 | -0.162 | -0.1 |

Table 1.21 Experimental pressure coefficients c_p for α = 15.53°, M_{∞} = 1.0 and Re_D = 6.1 · 10⁵

| oordinates | | | | | | Polar | angle, Φ | , deg. | | | | | |
|------------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|---------|--------|-------|
| 2/0 | | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.904 | 0.889 | 0.266 | 0.721 | 0.599 | 0.081 | 0.358 | 0.267 | 0.206 | 0.180 | 0.173 | 0.173 | 0.16 |
| 0.482 | 0.657 | 0.644 | 0.578 | 0.484 | 0.366 | 0.237 | 0.131 | 0.036 | -0.023 | -0.048 | -0.:65 | -0.087 | -0.07 |
| 0.731 | 0.431 | 0.413 | 0.348 | 0.254 | 0.143 | 0.027 | -0.072 | -0.161 | -0.214 | -0.235 | -0.231 | -0.232 | -0-23 |
| 0.430 | 3.193 | 0.169 | 0.111 | 0.023 | -0.076 | -0.190 | -0.277 | -0.356 | -0.399 | -0.405 | -0.378 | -0.388 | -0.3 |
| 1.238 | -0.025 | -0.048 | -0.104 | -C.183 | -0.282 | -0.385 | -0.458 | -0.529 | -0.562 | -0.557 | -0.543 | -0.533 | -0.5 |
| 1.500 | -0.151 | -0.161 | -0.218 | -0.290 | -0.378 | -0.466 | -0.539 | -0.555 | -0.615 | -0.500 | -0.574 | -0.554 | -0.54 |
| 1.944 | -0.093 | -0.094 | -0.150 | -0.240 | -0.342 | -0.452 | -0.525 | -0.563 | -0.547 | -0.441 | -0.351 | -0.288 | -0.26 |
| 2.444 | -0.076 | -0.087 | -0.157 | -0.251 | -0.353 | -0.462 | -0.536 | -0.490 | -0.320 | -6.232 | -0.168 | -0.136 | -0.10 |
| 2.944 | -0.076 | -0.090 | -0.157 | -0.247 | -0.367 | -0.473 | -0.387 | -0.285 | -0.207 | -0.162 | -0.150 | -0.101 | -0.0 |
| 3.444 | -0.080 | -0.097 | -0.168 | -0.265 | -0.289 | -0.299 | -0.292 | -0.221 | -0.168 | -0.172 | -0.135 | -0.076 | -0.03 |
| 3.944 | -0.019 | -0.037 | -0.076 | -0.144 | -0.214 | -0.253 | -0.249 | -0.175 | -0.118 | -0.150 | -0.224 | -0.037 | -0.01 |
| 4.444 | 0.023 | 0.002 | -0.044 | -0.112 | -0.186 | -0.083 | -0.157 | -0.087 | -0.030 | -0.365 | -0.185 | 0.035 | 0.05 |
| 4,944 | 0.127 | 0.060 | 0.067 | 0.005 | -0.055 | -0.101 | -0.086 | -0.023 | -0.012 | -0.016 | -0.125 | 0.027 | 0.04 |
| 5.444 | 0.140 | 0.124 | 0.076 | 0.013 | -0.051 | -0.101 | -0.086 | -0.016 | -0.009 | -0.009 | -0.069 | -0.005 | 0.0 |
| 5.744 | 0.134 | 0.124 | 0.074 | 0.009 | -0.058 | -0.111 | -0.097 | -0.026 | -0.016 | -0.012 | -0.026 | -0.026 | 0.0 |
| 6.444 | 0.122 | 0.115 | 0.063 | -0.005 | -0.069 | -0.122 | -0.115 | -0.041 | -0.026 | -0.016 | -0.016 | -0.037 | -0.0 |
| 6.944 | 0-116 | 0.109 | 0.055 | -0.012 | -0.076 | -0.129 | -0.118 | -0.048 | -0.033 | -0.023 | -0.016 | -0.037 | -0.0 |
| 7.444 | 0.103 | 0.095 | 0.041 | -0.C27 | -0.090 | -0.140 | -0.129 | -0.058 | -0.041 | -0.033 | -0.026 | -0.037 | -0.0 |
| 7.944 | 0.097 | 0.086 | 0.035 | -0.030 | -0.094 | -0.136 | -0.132 | -0.062 | -0.044 | -0.041 | -0.033 | -0.037 | -0.0 |
| 8.444 | 0.089 | 0.074 | 0.027 | -0.044 | -0.108 | -0.143 | -0.136 | -0.015 | -0.049 | -0.044 | -0.044 | -0.044 | -0.0 |
| 8.7.4 | 0.084 | 0.067 | 0.023 | -0.041 | -0.108 | -0.140 | -0.132 | -0.6-2 | -0.0-4 | -0.044 | C . 044 | -0.040 | -C.C |
| 9.444 | 0.085 | 0.065 | 0.020 | -0.051 | -0.115 | -0.151 | -0.136 | -0.165 | -0.048 | -0.055 | -0.055 | -0.055 | -0.0 |
| 9.944 | 0.081 | 0.062 | 0.023 | -0.044 | -0.104 | -0.140 | -0.125 | -0.055 | -0.044 | -0.044 | -0.044 | -0.040 | -0.0 |
| 10.444 | 0.086 | 0.072 | 0.027 | -0.036 | -0.095 | -0.028 | -0.114 | -0.047 | -0.041 | -0.038 | -0.039 | -0.034 | -0.0 |
| 10.944 | 0.090 | 0.077 | 0.027 | -0.034 | -0.093 | -0.126 | -0.109 | -0.045 | -0.041 | -0.038 | -0.038 | -0.032 | -0.0 |
| 11-444 | 0.088 | 0.074 | 0.027 | -0.040 | -0.099 | -0.127 | -0.111 | -0.047 | -0.045 | -0.043 | -0.043 | -0.040 | -0.0 |
| 11.944 | 0.062 | 0.067 | 0.023 | -0.040 | -0.099 | -0.127 | -0.111 | -0.047 | -0.043 | -0.043 | -0.045 | -0.C41 | -0.0 |
| 12.444 | 0.084 | 0.057 | 0.023 | -0.040 | -0.101 | -0.126 | -0.139 | -0.045 | -0.040 | -0.041 | -0.043 | -0.038 | -0.0. |
| 12.944 | 0.088 | 0.071 | 0.027 | -0.036 | -0.095 | -0.120 | -0.104 | -0.043 | -0.040 | -0.038 | -0.039 | -0.032 | -0.0 |
| 13.444 | 0.062 | 0.064 | 0.027 | -0.039 | -0.097 | -0.122 | -0-104 | -0.041 | -0.040 | -0.038 | -0.039 | -0.039 | -0-0 |
| 13.744 | 2.084 | 0.071 | 0.027 | -0.038 | -0.097 | -0.122 | -0.102 | -0.039 | -0.038 | -0.036 | -0.036 | -0.039 | -0.0 |
| 14.444 | 0.027 | 0.027 | 0.027 | -0.637 | -0.006 | -0.123 | -0.10Z | -0.043 | -0.039 | -0.038 | -C.038 | -0.040 | -0.0 |
| 14.944 | 0.085 | 0.071 | 0.027 | -0.036 | -0.095 | -0.124 | -0.102 | -0.041 | -0.039 | -0.040 | -0.039 | -0.041 | -0.0 |
| 15.444 | 0.083 | 0.067 | 0.025 | -0.040 | -0.099 | -0.122 | -0.104 | -0.045 | -0.041 | -0.041 | -0.039 | -0.043 | -0.0 |
| 15.944 | 0.081 | 0.063 | 0.023 | -0.040 | -0.100 | -0.122 | -0.102 | -0.047 | -0.041 | -0.043 | -0.045 | -0.047 | -0.0 |
| 15.444 | 0.075 | 0.060 | 0.020 | -0.020 | -0.066 | -0.086 | -0.070 | -0.038 | -0.022 | -0.025 | -0.025 | -0.025 | -0.0 |
| 16.744 | 0.078 | 0.064 | 0.020 | -0.024 | -0.070 | -0.088 | -0.073 | -0.032 | -0.025 | -0.029 | -0.029 | -0.029 | -0.0 |
| 17.444 | 0.076 | 0.059 | 0.020 | -0.042 | -0.100 | -0.117 | -0.098 | -0.048 | -0.038 | -0.043 | -0.041 | -0.043 | -0.0 |
| 17.944 | 0.083 | 180.0 | 0.027 | -0.031 | -0.090 | -0.124 | -0.097 | -0.039 | -0.041 | -0.033 | -0.036 | -0.041 | -0.0 |
| 18.444 | 0.076 | 0.069 | 0.020 | -0.042 | -0.100 | -0-124 | -0.102 | -0.052 | -0.041 | -0.045 | -0-041 | -0.045 | -0.0 |
| 18.944 | 0.077 | 0.065 | 0.023 | -0.036 | -0.088 | -0.113 | -0.097 | -0.047 | -0.039 | -0.043 | -0.041 | -0.045 | -0.0 |
| 19.444 | 0.278 | 0.066 | 0.023 | -0.036 | -0.090 | -0.115 | -0.097 | -0.052 | -0.039 | -0.047 | -0.043 | -0.047 | -0.0 |
| 19.944 | 0.083 | 0.064 | 0.023 | -0.042 | -0.1C8 | -0.129 | -0.102 | -0.057 | -0.045 | -0.049 | -0.046 | -0.041 | -0.0 |
| 20.444 | 0.078 | 0.057 | 0.023 | -0.040 | -0.091 | -0.120 | -0.102 | -0.057 | -0.047 | -0.049 | -0.048 | -0.045 | -0.0 |
| 20.944 | 0.072 | 0.054 | 0.016 | -0.043 | -0.100 | -0.129 | -0.113 | -0.068 | -0.057 | -0.061 | -0.059 | -0.061 | -0.0 |
| 21.444 | 0.020 | 0.013 | -0.034 | -0.094 | -0.154 | -0.197 | -0.202 | -0.190 | -0.186 | -0.185 | -0.177 | -0.165 | -0-1 |

Table 1.22 Experimental pressure coefficients c $_{p}$ for α = 15.59 o , M $_{\infty}$ = 1.1 and Re $_{D}$ = 6.2 · 10 5

| | | | | | | þ | | | ω | | | D | |
|-------------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar | angle, Φ | deg. | | | | | |
| X/D | c | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.978 | 0.955 | 0.893 | 0.798 | 0.679 | 0.540 | 0.445 | 0.357 | 0.299 | 0.272 | 0.264 | 0.263 | 0.26 |
| 0.482 | 3.738 | 0.718 | 0.658 | 0.570 | 0.454 | 0.334 | 0.231 | 0.142 | 0.078 | 0.052 | 0.037 | 0-026 | 0.03 |
| 0.731 | 0.519 | 0.497 | 0.439 | 0.350 | 0.242 | 0.132 | 0.033 | -08 | -0.104 | -0.127 | -0.127 | -0.120 | -C.1 |
| 0.980 | 0.239 | 0.265 | 0.214 | 0.133 | 0.032 | -0.071 | -0.157 | -0.229 | -0.272 | -0.282 | -0.275 | -0.262 | -0.2 |
| 1.238 | 0.077 | 0.054 | 0.008 | -0.064 | -0.157 | -0.250 | -0.332 | -0.374 | -0.427 | -0.420 | -0.407 | -0.394 | -0.3 |
| 1.500 | -0.031 | -0.048 | -0.091 | -0.160 | -0.250 | -0.335 | -0.407 | -0.450 | -0.483 | -3.466 | -0.440 | -0.413 | -0.4 |
| 1.944 | 0.012 | -0.011 | -0.054 | -0.130 | -0.233 | -0.232 | -6.408 | -0.446 | -2.404 | -0.344 | -0-265 | -0.205 | -0.1 |
| 2.444 | 0.012 | -0.008 | -0.061 | -0.147 | -0.246 | -0.348 | -0.421 | -0.427 | -0.272 | -0.176 | -0.107 | -0.08: | -0.0 |
| 2.944 | 0.012 | -0.015 | -0.061 | -0.153 | -0.260 | -0.368 | -0.411 | -0.255 | -0.153 | -0.133 | -0.100 | -0.051 | C.0 |
| 8.444 | 0.009 | -0.015 | -0.077 | -0.173 | -0.276 | -0.302 | -0.242 | -0.170 | -0.117 | -0.117 | -0.133 | -0.021 | 0.0. |
| 3.744 | 0.002 | -0.018 | -0.077 | -0.117 | -0.170 | -0.203 | -0.199 | -0.127 | -0.090 | -0.110 | -0.173 | 0.002 | 0.0 |
| 4.444 | 0.043 | 0.028 | -0.018 | -0.097 | -0.150 | -0.193 | -0.176 | -0.100 | -0.087 | -0.100 | -0.213 | -0.008 | 0.0 |
| 4.644 | 0.063 | 0.047 | 0.002 | -0.077 | -0-131 | -0.180 | -0.166 | -0.297 | -0.084 | -0.081 | -0.196 | -0.020 | -0.0 |
| 5.444 | 0.079 | 0.064 | 0.012 | -0-048 | -0.134 | -0.180 | -0.173 | -0-100 | -0.084 | -0.074 | -0.124 | -0.074 | -0.0 |
| 5.944 | 0.073 | 0.055 | 0.012 | -0.058 | -0.124 | -0.177 | -0.163 | -C.037 | -C.077 | -0.077 | -0.091 | -0.090 | -0.0 |
| 6.444 | 0.080 | 0.065 | 0.015 | -0.051 | -0.131 | -0.183 | -0-176 | -0.1:4 | -0.037 | -0.077 | -0.084 | -0.097 | -0.0 |
| 6.944 | 0.079 | 0.067 | 0.015 | -0.054 | -0.131 | -0.160 | -0.183 | -0.110 | -0.084 | -0.377 | -0.077 | -0.084 | -0.0 |
| 7.444 | 0.072 | 0.053 | 0.005 | -0-064 | -0.127 | -0.187 | -0.165 | -0.070 | -0.077 | -0.067 | -0.071 | -0.074 | -0.0 |
| 7.944 | 0.089 | 0.075 | 0.025 | -0.054 | -0.137 | -0.196 | -0.175 | -0.097 | -0.094 | -0.074 | -0-074 | -0.074 | -0.0 |
| 8.444 | 0.064 | 0.047 | -0.008 | -0.068 | -0.157 | -0.190 | -0.183 | -0.704 | -0.093 | -0.087 | -0-094 | -0.077 | -0.0 |
| 8.944 | 0.052 | 0.036 | -0.018 | -0.084 | -0.160 | -0.206 | -0.183 | -0.107 | -0.074 | -0.090 | -0.094 | -0.087 | -0.0 |
| 9.444 | 0.033 | 0.012 | -0.038 | -0.114 | -0.183 | -0.210 | -0.176 | -0.070 | -0.094 | -0.081 | -0.084 | -0.081 | -0.0 |
| \$.944 | 0.032 | 0.015 | -0.031 | -0.101 | -0.117 | -0.153 | -0.127 | -0.054 | -0.071 | -0.057 | -0.054 | -C.051 | -0.0 |
| 10.444 | 0.063 | 0.051 | 0.015 | -0.042 | -0.117 | -0.149 | -0.124 | -0.053 | -2.045 | -0.063 | -0.070 | -0.060 | -0.0 |
| 10.744 | 0.075 | 0.061 | 0.012 | -0.043 | -0.116 | -0.135 | -0.114 | -0.535 | -0.035 | -0.047 | -0.058 | -0.035 | -0.0 |
| 11.444 | 0.060 | 0.044 | 0.005 | -0.072 | -0.092 | -0.099 | -0.075 | -0.015 | -0.047 | -0.042 | -0.052 | -0.050 | -0.0 |
| 11.944 | 3.062 | 0.047 | 0.034 | -0.057 | -0.090 | -0.117 | -0.084 | -0.032 | -0.043 | -0.033 | -0.038 | -0.043 | -0.0 |
| 12.444 | 0,078 | 0.065 | 0.025 | -0.030 | -0.072 | -0.114 | -0.087 | -0.030 | -0.003 | -0.027 | -0.023 | -0.023 | -0.0 |
| 12.744 | 0.116 | 0.082 | 0.054 | -0.018 | 0.038 | -0.003 | 0.008 | 0.613 | 0.027 | 0.008 | -0.015 | 0.013 | 0.0 |
| 13.444 | 0.193 | 0.180 | 0.131 | 0.077 | -0.013 | -0.052 | -0.033 | 0.023 | 0.013 | 0.022 | 0.013 | 0.007 | 0.0 |
| 13.944 | 0.152 | 0.141 | 0.088 | 0.035 | -0.039 | -0.064 | -0.048 | 0.015 | 0.003 | 0.018 | 0.013 | 0.002 | 0.02 |
| 14.444 | 0.025 | 0.025 | 0.025 | 0.020 | -0.049 | -0.079 | -0.063 | 0.002 | -0.005 | 0.008 | 0.003 | -0.004 | 0.0 |
| 14.944 | 0.130 | 0.113 | 0.072 | 0.005 | -0.060 | -0.094 | -0.077 | -0.012 | -0.018 | -0.002 | 0.003 | -0.010 | 0.00 |
| 15.444 | 0.115 | 0.100 | 0.055 | -0.C10 | -0.080 | -0.119 | -0.027 | -0.:32 | -0.040 | -0.023 | -0.017 | -0.033 | -0.0 |
| 15.944 | 0.101 | 0.087 | 0.038 | -0.018 | -0.106 | -0.140 | -0.120 | -0.553 | -0.058 | -0.048 | -0.045 | -0.053 | -0.0 |
| 16.444 | 0.077 | 0.065 | 0.015 | -0.020 | -0.080 | -0.102 | -0.020 | -0.040 | -0.037 | -0.033 | -0.030 | -0.026 | -0.0 |
| 16.944 | 0.063 | 0.049 | 0.002 | -0.030 | -0.087 | -0.105 | -0.092 | -0.043 | -0.040 | -0.037 | -0.033 | -0.033 | -0.0 |
| 17.444 | 0.052 | 0.038 | -0.005 | -0.067 | -0.121 | -0.127 | -0.114 | -0.060 | -0.000 | -0.058 | -0.052 | -0.05 | -0.0 |
| 17.944 | 0.052 | 0.031 | 0.005 | -0.057 | -0.109 | -0.125 | -0.115 | -0.053 | -2.058 | -0.062 | -0.057 | -0.06 | -0.0 |
| 18.444 | 0.037 | 0.055 | 0.029 | -0.060 | -0.095 | -0.130 | -0.104 | -0.052 | -0.047 | -0.053 | -0.053 | -0.053 | -0.0 |
| 18.944 | 0.065 | 0.045 | 0.012 | -0.023 | -0.112 | -0.124 | -0.105 | -0.048 | -0.038 | -0.045 | -0.042 | -0.043 | -0.0 |
| 19.444 | 0.054 | 0.025 | 0.005 | -0.049 | -0.097 | -0.124 | -0.074 | -0.645 | -0.040 | -0.040 | -0.030 | -0.023 | -0.0 |
| 19.944 | 0.069 | 0.028 | 0.002 | 0.050 | -0.000 | -0.000 | 0.089 | -0.000 | -0.600 | -0.000 | -0.000 | -0.000 | |
| 20.444 | 0.076 | 0.036 | 0.025 | -0.059 | -0.084 | | | | | | | | -0.00 |
| 20.744 | 0.085 | 0.057 | 0.025 | -0.042 | | -0.127 | -0.095 | -0.055 | -0.045 | -0.057 | -0.050 | -0.053 | -0.05 |
| | | | | | -0.109 | -0.130 | -0.107 | -0-060 | -0.045 | -0.063 | -0.053 | -0.058 | -0.0 |
| 21.444 | 0.054 | 0.027 | -0.005 | -0.649 | -0.124 | -0.164 | -0.152 | -0.150 | -0.152 | -0.153 | -0.120 | -0.102 | -0.09 |

Table 1.23 Experimental pressure coefficients c_p for α = 15.65°, M_{∞} = 1.2 and Re_D = 6.3 · 10⁵

| | | | | | | þ | | | ω | | | D | |
|-------------|-------|-------|--------|--------|--------|----------|-----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar an | gle, Φ, d | leg. | | | | | |
| 2/0 | 0 | 15 | 30 | 49 | 60 | 75 | 90 | 205 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 1.020 | 0.978 | 0.936 | 0.845 | 0.730 | 0.595 | 0.503 | 0.415 | 0.355 | 0.331 | 0.323 | 0.321 | 0.32 |
| 0.482 | 0.780 | 0.762 | 0.703 | 0.621 | 0.506 | 0.391 | 0.295 | 0.204 | 0.142 | 0.116 | 0.101 | 0.091 | 0.09 |
| C.731 | 0.568 | 0.546 | 0.489 | 0.407 | 0.301 | 0.194 | 0.098 | 0.070 | -0.037 | -0.062 | -0.065 | -0.062 | -C.0 |
| 0.960 | 0.343 | 0.322 | 0.271 | 0.196 | 0.099 | 0.001 | -0.094 | -0.154 | -0.198 | -0.210 | -0.207 | -0.198 | -0.19 |
| 1.238 | 0.138 | C.118 | 0.074 | 0.007 | -0.084 | -0.176 | -0.248 | -0.311 | -0.343 | -0.346 | -0.330 | -0.318 | -0.31 |
| 1.500 | 0.333 | 0.020 | -0.024 | -0.031 | -0.172 | -0.258 | -0.327 | -0.383 | -0.466 | -0.396 | -0.368 | -0.346 | -0.3 |
| 1.944 | 0.057 | 0.033 | -0.012 | -0.078 | -0.179 | -0.271 | -0.346 | -0.393 | -0.387 | -0.321 | -0.251 | -0.192 | -0.1 |
| 2.444 | 0.051 | 0.023 | -0.021 | -0.100 | -0.195 | -0.290 | -0.365 | -0.399 | -0.292 | -0.182 | -0.109 | -0.084 | -0.0 |
| 2.744 | 0.028 | 0.013 | -0.034 | -0.122 | -0.220 | -0.321 | -0.400 | -0.305 | -0.176 | -0.144 | -0.116 | -0.066 | -0.00 |
| 3.444 | 0.023 | 0.004 | -0.046 | -0.135 | -0.236 | -0.343 | -0.305 | -0.172 | -0.135 | -0.128 | -0.131 | -0.034 | 0.0 |
| 3.944 | 0.042 | 0.016 | -0.037 | -0.132 | -0.232 | -0.236 | -0.214 | -0.138 | -0.103 | -0.125 | -0.182 | -0.005 | 0.0 |
| 4.444 | 0.046 | 0.024 | -0.043 | -0.122 | -0.150 | -0.208 | -0.185 | -0.106 | -0.097 | -0.113 | -0.226 | -0.015 | 0.00 |
| 4.944 | 0.015 | 0.019 | -0.034 | -0.097 | -0.169 | -0.214 | -0.201 | -0.119 | -0.106 | -0.113 | -0.232 | -0.050 | -0.0 |
| 9.444 | 0.078 | 0.056 | -0.002 | -0.062 | -0.147 | -0.195 | -0.185 | -0.116 | -0.097 | -0.087 | -0.150 | -0.081 | -0.0 |
| 5.344 | 0.058 | 0.065 | 0.013 | -0.078 | -0.135 | -0.195 | -0.179 | -0.091 | -0.065 | -0.062 | -0.087 | -0.062 | -0.0 |
| 6.444 | 0.062 | 0.045 | -0.006 | -0.072 | -0.157 | -0.173 | -0.144 | -0.081 | -0.075 | -0.078 | -0.084 | -0.103 | -0.0 |
| 6.745 | 0.081 | 0.048 | 0.007 | -0.065 | -0.122 | -0.170 | -0.157 | -0.073 | -0.062 | -0.065 | -0.072 | -0.078 | -0.0 |
| 7.444 | 0.089 | 0.076 | 0.010 | -0.053 | -0.135 | -0.154 | -0.110 | -0.059 | -0.059 | -0.059 | -0.072 | -0.075 | -0.0 |
| 7.744 | 0.054 | 0.032 | 0.013 | -0.053 | -0.100 | -0.157 | -0.141 | -0.065 | -0.056 | -0.053 | -0.053 | -0.056 | -0.0 |
| 8.446 | 0.089 | 0.062 | 0.010 | -0.059 | -0.119 | -0.148 | -0.135 | -0.072 | -0.059 | -0.065 | -0.068 | -0.075 | -0.0 |
| 8.744 | 0.074 | 0.075 | 0.023 | -0.028 | -0.110 | -0.151 | -0.132 | -0.062 | -0.053 | -0.046 | -0.062 | -0.043 | -0.0 |
| 9.444 | 0.078 | 0.066 | 0.023 | -0.059 | -0.116 | ~0.151 | -0.128 | -0.069 | -0.056 | -0.065 | -0.059 | -0.066 | -0.0 |
| 9.714 | 0.033 | 0.062 | 0.023 | -0.053 | -0.116 | -0.154 | -0.116 | -0.053 | -0.050 | -0.046 | -0.050 | -0.040 | -0.0 |
| 10.444 | 0.079 | 20001 | 0.027 | -0.043 | -0.084 | -0.126 | -0.108 | -0.047 | -0.046 | -0.043 | -0.044 | -0.639 | -0.0 |
| 10.944 | 2.135 | 0.081 | 0.023 | -0.027 | -0.199 | -0.141 | -0.108 | -0.050 | -0.036 | -0.041 | -0.049 | -0.036 | -0.0 |
| 11.444 | 0.071 | 0.054 | 0.500 | -0.054 | -0.098 | -0.049 | 0.000 | 0.018 | 0.004 | 0.005 | 0.015 | 0.020 | 0.0 |
| 11.944 | 0.092 | 0.095 | 0.111 | 0.037 | -0.030 | -0.079 | -0.065 | -0.009 | -0.020 | -0.015 | -0.006 | -0.033 | -0.0 |
| 12.444 | 0.167 | 0.140 | 0.075 | 0.023 | -C.065 | -0.111 | -0.100 | -0.235 | -0.030 | -0.028 | -0.023 | -0.022 | -0.0 |
| 12.444 | 0.131 | 0.104 | 0.051 | -0.007 | -0.093 | -0.135 | -0.111 | -0.042 | -0.041 | -0.033 | -0.038 | -0.036 | -0.0 |
| 13.444 | 0.131 | 0.104 | 0.049 | -0.039 | -0.095 | -0.129 | -0.106 | -0.052 | -0.046 | -0.044 | -0.050 | -0.054 | |
| | | | | | | -0.157 | | | -0.054 | | | | -0.0 |
| 13.344 | 0.081 | 0.052 | -0.002 | -0.058 | -0.129 | -0.131 | -0.129 | -0.062 | | -0.039 | -0.039 | -0.030 | -5.0 |
| 14.444 | 0.023 | 0.023 | 0.023 | -0.058 | -0.103 | | -0.106 | -0.052 | -0.051 | -0.044 | -0.044 | -C.041 | -0.0 |
| 14.944 | 0.076 | 0.057 | 0.004 | -0.057 | -0.078 | -0.105 | -0.084 | -0.042 | -3.049 | -0.049 | -0.049 | -0.052 | -0.0 |
| 15.444 | 0.077 | 0.066 | 0.020 | -0.031 | -0.093 | -0.114 | -0.074 | -0.037 | -0.047 | -0.054 | -0.057 | -0.057 | -0.0 |
| 15.944 | 0.079 | 0.076 | 0.035 | -0.039 | -0.060 | -0.103 | -0.034 | -0.046 | -0.038 | -0.050 | -0.052 | -0.051 | -0.0 |
| 16.444 | 0.076 | 0.069 | 0.024 | -0.011 | -0.049 | -0.075 | -0.052 | -0.015 | -0.019 | -0.019 | -0.019 | -0.025 | -0.0 |
| 15.944 | 0.097 | 0.100 | 0.099 | -0.007 | -0.027 | -0.063 | -0.043 | -0.012 | -0.019 | -0.012 | -0.011 | -0.019 | -0.0 |
| 17.444 | 0.112 | 0.090 | 0.043 | -0.009 | -0.086 | -0.132 | -0.124 | -0.058 | -0.049 | -0.038 | -0.028 | -0.020 | -0.0 |
| 17.944 | 0.392 | 0.071 | 0.016 | -0.035 | -0.133 | -0.159 | -0.122 | -0.055 | -0.252 | -0.047 | -0.036 | -0.054 | -0.0 |
| 18.444 | 0.041 | 0.016 | -0.028 | -0.090 | -0.121 | -0.126 | -0.108 | -0.065 | -0.065 | -0.060 | -0.052 | -0.060 | -0.0 |
| 18.944 | 0.051 | 0.042 | 0.007 | -0.054 | -0.116 | -0.149 | -0.124 | -0.066 | -0.054 | -0.060 | -0.054 | -0.062 | -0.C |
| 19.444 | 865.0 | 0.076 | 0.016 | -0.039 | -0.103 | -0.108 | -0.095 | -0-046 | -0.039 | -0.042 | -0.038 | -0.033 | -0.0 |
| 19.744 | 0.085 | 0.084 | 0.075 | 0.013 | -0.068 | -0.078 | -0.052 | -0.023 | -0.028 | -0.036 | -0.039 | -0.049 | -0.0 |
| 20.444 | 0.068 | 0.052 | 0.023 | -0.050 | -0.095 | -0.137 | -0.121 | -0.062 | -0.047 | -0.052 | -0.047 | -0.055 | -0.0 |
| 20.944 | 0.390 | 0.080 | 0.024 | -0.038 | -0.119 | -0.145 | -0.105 | -0.050 | -0.044 | -0.044 | -0.039 | -0.036 | -0.0 |
| 21.444 | 3.384 | 0.066 | 0.028 | -0.041 | -0.070 | -0.116 | -0.120 | -0.116 | -0.117 | -0.111 | -0.089 | -0.066 | -0.0 |

Table 1.24 Experimental pressure coefficients c_p for α = 20°, M_∞ = 0.7 and Re_D = 5.2 · 10⁵

| Coordinates | | | | | | Polar a | angle, Φ | , deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|--------|
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 105 | 160 |
| 0.251 | 0.878 | 0.337 | 0.238 | 0.130 | 0.360 | 0.161 | -0.146 | -0.120 | -0.182 | -0.198 | -0.166 | -0.119 | -0.07 |
| 0.402 | 0.635 | 0.595 | 0.492 | 0.333 | C.139 | -0.052 | -0.225 | -0.329 | -0.385 | -0.396 | -0.380 | -0.353 | -0.349 |
| 0.731 | 0.413 | 0.378 | 0.275 | 0.123 | -0.062 | -0.245 | -0.387 | -0.475 | -0.510 | -0.495 | -0.458 | -0.410 | -0.40 |
| 0.980 | 0.192 | 0.158 | 0.063 | -0.079 | -0.245 | -0.412 | -0.538 | -0.600 | -0.599 | -0.552 | -0:505 | -0.457 | -0.43 |
| 1.238 | 0.045 | 0.016 | -0.078 | -0.210 | -0.350 | -0.490 | -0.580 | -0.595 | -0.541 | -0.511 | -0.458 | -0.322 | -0.3I |
| 1.500 | -0.036 | -0.063 | -0.146 | -0.273 | -0.397 | -0.505 | -0.564 | -0.537 | -0.494 | -0.365 | -0.255 | -0.2C2 | -0.19 |
| 1.944 | 0.086 | 0.059 | -0.026 | -0.142 | -0.266 | -C.333 | -0.407 | -0.370 | -0.276 | -0.161 | -0.098 | -0.010 | 0.01 |
| 2.444 | 0.113 | 0.078 | 0.005 | -0.120 | -0.245 | -0.338 | -0.386 | -0.339 | -0.224 | -0.130 | -0-083 | -0.015 | 0.03 |
| 2.944 | 0.120 | 0.086 | 0.006 | -C.115 | -C.229 | -0.323 | -0.350 | -0.303 | -0.171 | -0.125 | -0.161 | -0.119 | -0.07 |
| 3.444 | 0.114 | 0.090 | 0.017 | -0.105 | -0.224 | -0.318 | -0.339 | -0.271 | -0.130 | -C.114 | -C-171 | -0.083 | 0.02 |
| 3.944 | 0.130 | 0.095 | 0.016 | -0.100 | -0.214 | -0.302 | -0.339 | -0.229 | -0.109 | -0.099 | -0-177 | -0.083 | 0.02 |
| 4.444 | 0.133 | 0.098 | 0.016 | -0.100 | -0.209 | -0.291 | -0.297 | -0.198 | -0.098 | -0.088 | -0.151 | -C-124 | -0.00 |
| 4.944 | 0.133 | 0.100 | 0.021 | -0.094 | -0.203 | -0.281 | -0.281 | -0.172 | -0.093 | -0.083 | -0.098 | -0.140 | -0.04 |
| 5.444 | 0.132 | 0.107 | 0.026 | -0.079 | -C.193 | -0.276 | -0.265 | -0.156 | -0.093 | -0.083 | -0.083 | -0.124 | -0.05 |
| 5.944 | 0.133 | 0.105 | 0.026 | -0.089 | -0.193 | -0.271 | -0.250 | -0.151 | -0.088 | -0.678 | -0.083 | -0-109 | -0.00 |
| 6.444 | 0.135 | 0.110 | 0.026 | -0.084 | -0.188 | -0.265 | -0.255 | -0.141 | -0.083 | -0.078 | -0.083 | -0-093 | -0.00 |
| 6.744 | 0.135 | 0.112 | 0.032 | -0.073 | -0.183 | -0.260 | -0.250 | -0.139 | -0.078 | -0.078 | -0.078 | -0.093 | -0.05 |
| 7.444 | 0.135 | 0.112 | 0.032 | -0.073 | -0.183 | -0.260 | -0.239 | -0.130 | -0.078 | -0.073 | -0.067 | -0.067 | -0.04 |
| 7.944 | 0.138 | 0.114 | 0.037 | -0.068 | -C.172 | -0.250 | -0.229 | -0.109 | -0.073 | -0.067 | -0.067 | -0.062 | -0.03 |
| 0.444 | 0.134 | 0.112 | 0.032 | -0.068 | -0.178 | -0.249 | -0.229 | -0-109 | -0.067 | -0.067 | -0.067 | -0.062 | -0.04 |
| 8.944 | 0.133 | 0.110 | 0.037 | -0.068 | -0.172 | -0.244 | -0.224 | -0.104 | -0.062 | -0.067 | -0.067 | -0.057 | -0.04 |
| 9.444 | 0.131 | 0.108 | 0.032 | -0.073 | -0.172 | -0.244 | -0.224 | -0.099 | -0.062 | -0.067 | -0.072 | -0.057 | -0.05 |
| 9.944 | 0.135 | 0.111 | 0.037 | -0.063 | -0.172 | -0.234 | -0.214 | -0.088 | -0.057 | -0.062 | -0.067 | -0.046 | -0.05 |
| 10.444 | 0.137 | 0.112 | 0.037 | -0.060 | -0.165 | -0.232 | -0.208 | -0.084 | -0.054 | -0.060 | -0.065 | -0.043 | -0.03 |
| 10.944 | 0.137 | 0.114 | 0.050 | -0.055 | -0.162 | -0.224 | -0.205 | -0.076 | -0.054 | -0.063 | -0.068 | -0.049 | |
| 11.444 | 0.134 | | | -0.061 | | -0.229 | | -0.076 | -0.057 | -0.062 | -0.073 | -0.C51 | -0.08 |
| 11.944 | 0.136 | 0.112 | 0.039 | -0.055 | -0.165 | -0.218 | -0.206 | -G.071 | -0.C52 | -0.060 | -0.068 | -0.049 | -0.01 |
| 12.444 | 0.134 | | 0.046 | -0.055 | | -0.219 | | | | | | | |
| | | 0.112 | | | -C.160 | | -0.189 | -0-068 | -0.052 | -0.057 | -0.068 | -0.049 | -C.07 |
| 12.344 | 0.143 | 0.118 | 0.048 | -0.052 | -0.154 | -0.210 | -0.178 | -0.065 | -0.052 | -0.057 | -0.065 | -0.046 | -0.01 |
| 13.444 | 0.136 | 0.112 | 0.042 | -0.058 | -0.154 | -0.208 | -0.170 | -0.063 | -0.052 | -0.060 | -0.065 | -0.052 | -0.01 |
| 13.944 | 0.130 | 0.107 | 0.037 | -0.063 | -0.157 | -0.210 | -0.165 | -0.063 | -0.054 | -0.060 | -0.068 | -0.060 | -0.03 |
| 14.444 | 0.132 | 0.108 | 0.037 | -0.060 | -0.154 | -0.205 | -0.150 | -0.060 | -0.056 | -0.060 | -0.068 | -0.058 | -0.01 |
| 14.944 | 0.133 | 0.117 | 0.037 | -0.058 | -0.151 | -0.199 | -0.146 | -0.057 | -0.057 | -0.060 | -0.068 | -0.062 | -0.06 |
| 15.444 | 0.132 | 0.104 | 0.032 | -0.060 | -0.149 | -0.197 | -0.135 | -0.055 | -0.060 | -0.060 | -0.068 | -0.065 | -0.06 |
| 15.944 | 0.135 | 0.109 | 0.034 | -0.058 | -0.146 | -0.189 | -0.127 | -0.C52 | -0.060 | -0.060 | -0.068 | -0.070 | -0.06 |
| 10.444 | 0.130 | 0.103 | 0.026 | -0.069 | -0.151 | -0.192 | -0.122 | -0.C55 | -0.062 | -0.063 | -0.068 | -0.078 | -0.00 |
| 16.944 | 0.129 | 0.102 | 0.023 | -0.069 | -0.146 | -0.189 | -0.116 | -0-052 | -0.062 | -0.060 | -0.065 | -0.084 | -0.06 |
| 17.444 | 0.134 | 0.107 | 0.026 | -0.063 | -0.143 | -0.183 | -0.111 | -0.049 | -0.062 | -0.057 | -0.062 | -0.084 | -0.06 |
| 17.944 | 0.135 | 0.106 | 0.026 | -0.063 | -0.138 | -0.178 | -0.103 | -0.049 | -0.062 | -0.057 | -0.060 | -C.086 | -0.06 |
| 18.444 | 0.133 | 0.104 | 0.021 | -0.069 | -0.141 | -0.175 | -0.103 | -0.046 | -0.000 | -0.052 | -0.054 | -0.083 | -0.07 |
| 18.744 | 0.137 | 0.107 | 0.029 | -0.063 | -C.135 | -0.170 | -0.100 | -0.046 | -0.054 | -0.046 | -0.049 | -0.086 | -0.07 |
| 17.444 | 0.138 | 0.109 | 0.031 | -0.058 | -0.127 | -0.162 | -0.100 | -0.044 | -0.049 | -0.041 | -0.041 | -0.084 | -C.CI |
| 17.944 | 0.147 | 0.117 | 0.037 | -0.055 | -C.125 | -0.156 | -0.100 | -9.038 | -0.041 | -0.030 | -0.028 | -0.068 | -0.C |
| 20.444 | 0.152 | 0.124 | 0.045 | -0.044 | -C-114 | -C.145 | -0.100 | -0.033 | -0.028 | -0.017 | -0.014 | -0.054 | -0.04 |
| 20.944 | 0.154 | 0.128 | 0.053 | -0.036 | -0.103 | -0.132 | -0.098 | -0.025 | -0.014 | -0.003 | -0.001 | -0.038 | -0.02 |
| 21.444 | 0.160 | 0.140 | 0.062 | -0.020 | -0.089 | -0.103 | -0.076 | -0.003 | 0.013 | 0.023 | 0.029 | -0.003 | 0.29 |

Table 1.25 Experimental pressure coefficients c_p for α = 20°, M_{∞} = 0.8 and Re_D = 5.6 · 10⁵

| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.910 | 0.366 | 0.246 | 0.164 | 0.408 | 0.218 | -0.112 | -0.072 | -0.142 | -0.159 | -0:164 | -0.107 | -0.06 |
| 0.482 | 0.663 | 0.620 | 0.526 | 0.371 | 0.174 | -0.006 | -0.186 | -0.305 | -0.374 | -0.391 | -0.383 | -0.361 | -0.35 |
| 0.731 | 0.431 | 0.392 | 0.299 | 0.147 | -0.041 | -0.221 | -0.376 | -0.475 | -0.532 | -0.523 | -0.493 | -0.453 | -0.44 |
| 0.980 | 0.195 | 0.160 | 0.067 | -0.073 | -0.247 | -0.419 | -0.569 | -0.651 | -0.681 | -0.650 | -0.598 | -0.554 | -C.5 |
| 1.238 | 0.029 | -0.006 | -0.099 | -0.240 | -0.388 | -0.542 | -0.657 | -0.660 | -0.633 | -0.557 | -0.475 | -0.366 | -0.3 |
| 1.500 | -0.076 | -0.103 | -0.186 | -0.324 | -0.445 | -0.568 | -0.630 | -0.585 | -0.536 | -0.382 | -0.278 | -0.212 | -0.1 |
| 1.944 | 0.074 | 0.046 | -0.037 | -0.156 | -0.278 | -0.349 | -0.415 | -0.379 | -0.278 | -C.155 | -0.090 | -0.011 | 0.0 |
| 2.444 | 0.112 | 0.080 | -0.005 | -0.130 | -C.256 | -0.340 | -0.393 | -0.344 | -0.216 | -0.124 | -0.094 | -0.015 | 0.0 |
| 2.944 | 0.118 | 0.086 | 0.002 | -0.112 | -0.234 | -0.335 | -0.370 | -0.300 | -0.158 | -0.133 | -0.164 | -0.107 | -0.0 |
| 3.444 | 0.112 | 0.095 | 0.017 | -0.100 | -0.230 | -0.322 | -0.335 | -0.261 | -0.133 | -0.116 | -0.203 | -0.076 | C.0 |
| 3.944 | 0.129 | 0.099 | 0.024 | -0.099 | -0.212 | -0.304 | -0.335 | -0.217 | -0.111 | -0.103 | -0.212 | -0.076 | 0.0 |
| 4.444 | 0.132 | 0.101 | 0.020 | -0.086 | -C.208 | -0.291 | -0.292 | -0.192 | -0.103 | -0.089 | -0.164 | -0.120 | -0.0 |
| 4.944 | 0.133 | 0.102 | 0.024 | -0.090 | -0.203 | -0.282 | -0.274 | -0.156 | -0.102 | -0.089 | -0.107 | -0.142 | -0.0 |
| 5.444 | 0.132 | 0.105 | 0.024 | -0.077 | -C.195 | -0.269 | -0.265 | -0.147 | -0.098 | -0.089 | -0.094 | -0.129 | -0.0 |
| 5.944 | 0.134 | 0.105 | 0.024 | -0.081 | -0.195 | -0.269 | -0.257 | -0.138 | -0.094 | -0.085 | -0.094 | -0.116 | -0.0 |
| 8.444 | 0.135 | 0.107 | 0.029 | -0.077 | -0.190 | -0.261 | -0.248 | -0.134 | -0.089 | -0.085 | -0.094 | -0.107 | -0.0 |
| 6.944 | 0.134 | 0.109 | 0.029 | -0.073 | -0.186 | -0.256 | -0.243 | -0.125 | -0.039 | -0.081 | -0.085 | -0.094 | -0.0 |
| 7.444 | 0.134 | 0.109 | 0.029 | -0.073 | -0.186 | -0.256 | -0.235 | -0.125 | -0.085 | -0.076 | -0.081 | -0.075 | -0.0 |
| 7.944 | 0.138 | 0.111 | 0.036 | -0.064 | -0.173 | -0.243 | -0.226 | -0.112 | -0.081 | -0.072 | -0.076 | -0.076 | -0.0 |
| 8.414 | 0.133 | 0.108 | 0.035 | -0.068 | -0.181 | -0.243 | -0.226 | -0.112 | -0.076 | -0.072 | -0.076 | -0.076 | -c.o |
| 8.944 | 0.133 | 0.107 | 0.035 | -0.068 | -0.177 | -0.239 | -0.217 | -0.103 | -0.076 | -0.067 | -0.072 | -0.072 | -0.c |
| 9.444 | 0.131 | 0.104 | 0.033 | -0.068 | -0.177 | -0.239 | -0.217 | -0.099 | -0.076 | -0.067 | -0.076 | -0.081 | -c.o |
| 9.944 | 0.134 | 0.107 | 0.038 | -0.059 | -0.172 | -0.230 | -0.204 | -0.094 | -0.067 | -0.059 | -0.072 | -0.068 | -0.0 |
| 10.444 | 0.135 | 0.110 | 0.039 | -0.060 | -0.166 | -0.224 | -0.202 | -0.093 | -0.068 | -0.059 | -0.058 | -0.064 | -0.0 |
| 10.944 | 0.136 | 0.113 | 0.044 | -0.055 | -0.166 | -0.220 | -0.198 | -0.039 | -0.068 | -0.059 | -0.068 | -0.068 | -0.0 |
| 11.444 | 0.133 | 0.108 | 0.040 | -0.060 | -0.168 | -0.222 | -0.200 | -0.086 | -0.038 | -0.061 | -0.073 | -0.073 | -0.0 |
| 11.944 | 0.135 | 0.111 | 0.042 | -0.055 | -0.163 | -0.215 | -0.191 | -0.082 | -0.064 | -0.059 | -01068 | -0.064 | -0.0 |
| 12.444 | 0.134 | 0.100 | 0.041 | -0.053 | -0.163 | -0.216 | -0.186 | -C.082 | -0.064 | -0.061 | -0.068 | -0.064 | -0.0 |
| 12.944 | 0.139 | 0.116 | 0.046 | -0.051 | -0.157 | -0.206 | -0.177 | -0.075 | -0.062 | -0.061 | -0.066 | -0.057 | -0.0 |
| 13.444 | 0.135 | 0.110 | 0.040 | -0.055 | -0.159 | -0.206 | -0.171 | -0.073 | -0.062 | -0.064 | -0.068 | -0.059 | -0.C |
| 13.944 | 0.128 | 0.106 | 0.036 | -0.062 | -0.161 | -0.206 | -0.168 | -0.071 | -0.064 | -0.066 | -0.073 | -0.064 | -0.0 |
| 14.444 | 0.131 | 0-108 | 0.037 | -0.060 | -0.160 | -0.203 | -0.160 | -0.067 | -0.063 | -0.067 | -0.073 | -0.060 | -0.0 |
| 14.944 | 0.134 | 0.109 | 0.039 | -0.059 | -0.159 | -0.199 | -0.152 | -0.064 | -0.062 | -0.068 | -0.073 | -0.062 | -0.0 |
| 15.444 | 0.132 | 0.104 | 0.037 | -0.058 | -0.154 | -0.195 | -0.145 | -0.062 | -0.062 | -0.071 | -0.073 | -0.062 | -0.0 |
| 15.944 | 0.136 | 0.110 | 0.039 | -0.058 | -0.152 | -0.190 | -0.136 | -0.057 | -0.059 | ~0.071 | -0.073 | -0.062 | -0.0 |
| 16.444 | 0.130 | 0.104 | 0.033 | -0.067 | -0.156 | -0.193 | -0.134 | -0.057 | -0.061 | -0.075 | -0.075 | -0.068 | -0.0 |
| 16.944 | 0.130 | 0.103 | 0.033 | -0.067 | -0.154 | -0.188 | -0.125 | -0.053 | -0.059 | -0.075 | -01073 | -0.068 | -0.0 |
| 17.444 | 0.135 | 0.109 | 0.035 | -0.062 | -0.150 | -0.184 | -0.121 | -0.050 | -0.055 | -0.073 | -0.068 | -0.066 | -c.o |
| 17.944 | 0.136 | 0.108 | 0.037 | -0.062 | -0.143 | -0.179 | -0.112 | -0.048 | -0.052 | -0.068 | -0.066 | -0.071 | -0.c |
| 18.444 | 0.134 | 0.106 | 0.035 | -0.067 | -0.145 | -0.179 | -0.109 | -0.046 | -0.050 | -0.066 | -0.062 | -0.073 | -0.0 |
| 18.944 | 0.138 | 0.111 | 0.040 | -0.062 | -0.138 | -0.170 | -0.103 | -0.041 | -0.043 | -0.059 | -0:055 | -0.068 | -c.0 |
| 19.444 | 0.141 | 0.113 | 0.044 | -0.058 | -0.129 | -0.161 | -0.100 | -0.037 | -0.039 | -0.052 | -0.046 | -0.062 | -0.0 |
| 19.944 | 0.150 | 0.121 | 0.051 | -0.053 | -0.125 | -0.159 | -0.094 | -G.032 | -0.028 | -0.039 | -0.034 | -0.048 | -0.0 |
| 20.444 | 0.156 | 0.128 | 0.064 | -0.037 | -0.111 | -0.143 | -C.087 | -0.023 | -0.016 | -0.023 | -0.019 | -0.037 | -0.0 |
| 20.944 | 0.161 | 0.134 | 0.071 | -0.030 | -0.098 | -0.130 | -0.078 | -0.012 | -0.001 | -0.005 | -0.003 | -0.021 | -0.0 |
| 21.444 | 0.168 | 0.149 | 0.083 | -0.014 | -0.082 | -0.094 | -0.051 | 0.013 | 0.027 | 0.026 | 0.029 | 0.015 | 0.3 |

Table 1.26 Experimental pressure coefficients c_p for α = 20°, M_{∞} = 0.9 and Re_D = 5.9 · 10⁵

| | | | | | | р | | | ω | | | | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.955 | 0.329 | 0.270 | 0.209 | 0.475 | 0.294 | -0.075 | 0.013 | -0.059 | -0.078 | -0.147 | -0.079 | -0.00 |
| 0.482 | 0.705 | 0.672 | 0.579 | 0.429 | C.238 | 0.061 | -0.102 | -0.222 | -0.301 | -0.327 | -0.324 | -0.312 | -0.30 |
| 0.731 | 0.470 | 0.440 | 0.348 | 0.202 | 0.013 | -0.156 | -0.301 | -0.414 | -0.477 | -0.492 | -0.466 | -0.447 | -0.4 |
| 0.980 | 0.218 | 0.197 | 0.104 | -0.033 | -0.202 | -0.363 | -0.511 | -0.613 | -0.665 | -0.560 | -0.627 | -0.592 | -0.5 |
| 1.238 | 0.013 | -0.013 | -0.098 | -0.235 | -0.387 | -0.548 | -0.689 | -0.778 | -0.816 | -0.794 | -0:757 | -0.715 | -0.6 |
| 1.500 | -0.159 | -0.193 | -0.272 | -0.401 | -0.533 | -0.682 | -0.775 | -C.686 | -0.747 | -0.740 | -0.553 | -0.371 | -C.3 |
| 1.744 | 0.017 | -0.021 | -0.114 | -0.250 | -0.410 | -0.533 | -0.612 | -0.302 | -0.228 | -0.155 | -0.048 | 0.061 | C.0 |
| 2.444 | 0.105 | 0.355 | -0.030 | -0.140 | -C.268 | -0.375 | -0.355 | -0.279 | -0.179 | -0.159 | -0.074 | 0.025 | 0.0 |
| 2.944 | 0.118 | 0.087 | 0.009 | -0.114 | -0.241 | -0.333 | -0.320 | -0.236 | -0.151 | -0.151 | -0.147 | -0.079 | -0.0 |
| 3.444 | 0.106 | 0.105 | 0.023 | -0.100 | -0.229 | -0.318 | -0.306 | -0.206 | -0.140 | -0.132 | -C.178 | -0.094 | -0.0 |
| 3.944 | 0.131 | 0.104 | 0.029 | -0-095 | -0.217 | -0.302 | -0.306 | -0.179 | -0.132 | -0.132 | -0.170 | -0.094 | -0.0 |
| 4.444 | 0.134 | 0.105 | 0.021 | -0.099 | -0.222 | -0.302 | -0.268 | -0.160 | -0.129 | -0.128 | -0.151 | -0.167 | -0.0 |
| 4.944 | 0.133 | 0.106 | 0.029 | -0.095 | -0.218 | -0.294 | -0.253 | -0.148 | -0.125 | -0.128 | -0.128 | -0.179 | -0.0 |
| 5.444 | 0.134 | 0.110 | 0.029 | -0.091 | -0.214 | -0.290 | -0.237 | -0.137 | -0.125 | -0.125 | -0.109 | -0.175 | -0.0 |
| 5.944 | 0.135 | 0.110 | 0.029 | -0.031 | -C.214 | -0.294 | -0.225 | -0.133 | -0.125 | -0.125 | -0.098 | -C.163 | -0.0 |
| 6.444 | 0.135 | 0.108 | 0.029 | -0.095 | -0.214 | -0.290 | -0.213 | -0.129 | -0.129 | -0.125 | -0.094 | -0.156 | -0.0 |
| 6.944 | 0.135 | 0.110 | 0.030 | -0.095 | -0.218 | -0.290 | -0.206 | -0.125 | -0.132 | -0.128 | -0.086 | -0.152 | -0.0 |
| 7.444 | 0.135 | 0.110 | 0.030 | -0.095 | -0.218 | -0.290 | -0.198 | -0.125 | -0.132 | -0.129 | -0.078 | -0.148 | -0.0 |
| 7.944 | 0.139 | 0.113 | 0.031 | -0.095 | -0.214 | -0.287 | -0.167 | -0.113 | -0.132 | -0.132 | -0.076 | -0.155 | -0.0 |
| 8.444 | 0.134 | 0.117 | 0.029 | -0.107 | -0.226 | -0.294 | -0.179 | -C.113 | -0.133 | -0.133 | -0.082 | -0.167 | -0.0 |
| 8.944 | 0.133 | 0.106 | 0.025 | -0.107 | -0.226 | -0.294 | -0.171 | -0.107 | -0.132 | -0.133 | -0.082 | -0.171 | -0.0 |
| 9.444 | 0.132 | 0.104 | 0.021 | -0.115 | -0.233 | -0.299 | -0.171 | -0.105 | -0.133 | -0.133 | -0.086 | -0.175 | -0.0 |
| 9.944 | 0.134 | 0.107 | 0.025 | -0.107 | -0.229 | -0.291 | -C.160 | -C.102 | -0.125 | -2.121 | -0.078 | -0.159 | -0.0 |
| 10.444 | 0.134 | 0.108 | 0.027 | -0.115 | -0.223 | -0.280 | -0.147 | -0.096 | -0.117 | -0.111 | -0:113 | -0.143 | -0.0 |
| 10.944 | 0.135 | 0.110 | 0.030 | -0.105 | -0.219 | -0.271 | -0.147 | -0.090 | | -0.105 | -0.109 | -0.139 | -0.0 |
| | 0.132 | 0.106 | 0.027 | -0.105 | -0.219 | -0.268 | -0.155 | -0.098 | -0.111 | -0.099 | -C.108 | -0.133 | -0.1 |
| 11.444 | 0.134 | | 0.029 | -0.099 | | | | | | -0.099 | | -0.119 | |
| | | 0.108 | 0.029 | -0.095 | -0.209 | -0.253 | -0.149 | -0.030 | -0.092 | | -0.078 | | -2.1 |
| 12.444 | 0.133 | 0.108 | | | -0.201 | | -0.155 | -0.074 | -0.082 | -0.078 | -0.092 | -0.103 | -0.0 |
| 12.944 | 0.133 | 0.115 | 0.033 | -0.083 | -0.187 | -0.225 | -0.155 | -0.068 | -0.072 | -0.068 | -0.082 | -0.096 | -0.0 |
| 13.444 | 0.134 | 0.109 | 0.030 | -0.083 | -0.181 | -0.215 | -0.161 | -0.064 | -0.064 | -0.064 | -0.076 | -0.090 | -0.0 |
| 13.944 | 0.127 | 0.107 | 0.027 | -0.079 | -C.176 | -0.207 | -0.171 | -0.062 | -0.060 | -0.060 | -0.074 | -0.088 | -0.0 |
| 14.444 | 0.130 | 0.109 | 0.032 | -0.070 | -0.166 | -0.199 | -0.175 | -0.059 | -0.056 | -0.058 | -0.072 | -C.C75 | -0.0 |
| 14.944 | 0.133 | 0.111 | 0.037 | -0.061 | -0.155 | -0.191 | -0.177 | -0.056 | -0.052 | -0.056 | -0.070 | -0.074 | -0.0 |
| 15.444 | 0.131 | 0.111 | 0.038 | -0.055 | -C-148 | -0.161 | -0.179 | -0.054 | -0.050 | -0.058 | -0.070 | -0.074 | -0.C |
| 15.944 | 0.135 | 0.114 | 0.042 | -0.049 | -0.142 | -0.177 | -0.180 | -0.054 | -0.052 | -0.058 | -0.068 | -0.072 | -0.0 |
| 16.444 | 0.128 | 0.107 | 0.038 | -0.055 | -0.144 | -0.179 | -0.164 | -0.054 | -0.056 | -0.064 | -0.070 | -0.075 | -0.0 |
| 16.944 | 0.129 | 0.109 | 0.040 | -0.053 | -0.140 | -0-177 | -0.182 | -0.056 | -0.058 | -0.066 | -0.068 | -0.076 | -0.0 |
| 17.444 | 0.135 | 0.114 | 0.047 | -0.045 | -0.138 | -0.175 | -0.181 | -0.056 | -0.062 | -0.068 | -0.066 | -0.074 | -0.C |
| 17.944 | 0.136 | 0.116 | 0.050 | -0.043 | -0.134 | -0.177 | -0.173 | -0.056 | -0.068 | -0.074 | -0.060 | -0.074 | -0.0 |
| 18.444 | 0.135 | 0.115 | 0.048 | -0.047 | -0.140 | -C-185 | -0.171 | -0.058 | -0.072 | -0.080 | -0.058 | -0.072 | -0.0 |
| 18.944 | 0.140 | 0.121 | 0.055 | -0.041 | -0.136 | -0.183 | -0.156 | -0.056 | -0.074 | -C.082 | -0.048 | -0.066 | -c.o |
| 19.444 | 0.145 | 0.126 | 0.060 | -0.039 | -0.134 | -0.181 | -0.146 | -0.054 | -0.072 | -0.080 | -0.040 | -0.060 | -0.0 |
| 19.944 | 0.156 | 0.135 | 0.067 | -0.037 | -0.136 | -0.199 | -0.131 | -0.050 | -0.066 | -0.074 | -0.026 | -0.048 | -0.0 |
| 20.444 | 0.165 | 0.149 | 0.080 | -0.019 | -0.128 | -0-179 | -0.112 | -0.036 | -0.058 | -0.060 | -0.013 | -0.036 | -0.C |
| 20.944 | 0.172 | 0.151 | 0.086 | -0.017 | -0.114 | -0.168 | -0.084 | -0.023 | -0.040 | -0.043 | 0.009 | -0.019 | 0.0 |
| 21.444 | 0.182 | 0.167 | 0.098 | 0.001 | -0.100 | -0.134 | -0.041 | 0.011 | -0.007 | -0.005 | 0.045 | 0.021 | 0.3 |

Table 1.27 Experimental pressure coefficients c_p for α = 20°, M_{∞} = 0.95 and Re_D = 6.0 \cdot 10⁵

| Coordinates | | | | | | Polar ar | ngle, Φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|----------|----------|--------|--------|--------|---------|--------|-------|
| X/0 | 0 | 15 | 30 | 45 | 60 | 75 | 50 | 105 | 120 | 135 | 150 | 169 | 180 |
| 0.231 | 0.387 | 0.058 | 0.264 | 0.183 | 0.521 | 0.348 | -0.009 | 0.071 | -0.001 | -0.020 | -0-085 | 0.013 | 0.020 |
| 0.482 | 0.738 | 0.709 | 0.618 | 0.479 | 0.286 | 0.118 | -0.C45 | -0.158 | -0.238 | -0.254 | -0.250 | -0.252 | -0.24 |
| C.731 | 0.506 | 0.480 | 0.391 | 0.257 | 0.064 | -0.096 | -C.242 | -0-347 | -0.423 | -0.431 | -0.409 | -0.391 | -0.37 |
| 0.980 | 0.258 | 0.235 | 0.150 | 0.028 | -0.151 | -0.301 | -0.446 | -0.543 | -0.606 | -0.599 | -0.565 | -0.533 | -0.51 |
| 1.238 | 0.048 | 0.024 | -0.056 | -0.207 | -0.340 | -0.487 | -0.625 | -C-114 | -0.758 | -0.734 | -0-692 | -0.656 | -0.64 |
| 1.500 | -0.139 | -0.157 | -0.227 | -0.339 | -0.490 | -0.614 | -0.730 | -C-831 | -0.816 | -0.766 | -0.707 | -0.638 | -0.62 |
| 1.944 | -0.016 | -0.034 | -0.122 | -0.258 | -0.428 | -0.567 | -0.726 | -0.719 | -0.736 | -0.479 | -0.343 | -0.183 | -C.15 |
| 2.444 | 0.078 | -0.045 | -0.130 | -0.260 | -0.454 | -0.626 | -0.225 | -0.303 | -0.292 | -0.234 | -0.118 | 0.121 | 0-14 |
| 2.744 | 0.125 | -0.057 | -0.155 | -0.298 | -0.133 | -0.470 | -0.012 | -0.132 | -0.245 | -0.278 | -0.085 | 0.013 | 0.02 |
| 3.444 | 0.150 | 0.050 | -0.030 | -0.180 | -0.191 | -0.257 | -0.249 | -0.132 | -0.118 | -0.255 | -C. 132 | 0-017 | 0.35 |
| 3.944 | 0.155 | 0.138 | 0.061 | -0.042 | -0.191 | -0.272 | -0.249 | -0-143 | -0.121 | -0.100 | -0-191 | 0.017 | C.35 |
| 4.444 | 0.148 | 0.127 | 0.047 | -0.060 | -0.195 | -0.268 | -0.253 | -0-136 | -0.107 | -0.103 | -01154 | -0-062 | -0.03 |
| 4.944 | 0.142 | 0.123 | 0.044 | -0.064 | -0.199 | -0.275 | -0.253 | -0.125 | -0.103 | -0.111 | -0.122 | -0.122 | -0.08 |
| 5.444 | 0.139 | 0.119 | 0.043 | -0.064 | -C.195 | -0.272 | -0.238 | -0.118 | -0.103 | -0.103 | -0.103 | -0.129 | -0.03 |
| 5.944 | 0.140 | 0.118 | 0.040 | -0.068 | -0.191 | -0.264 | -0.227 | -0.118 | -0.103 | -C.100 | -0.096 | -0.118 | -0.09 |
| 6.444 | 0.139 | 0.115 | 0.038 | -0.068 | -0.188 | -0.257 | -0.234 | -0.114 | -0.103 | -0.092 | -0.039 | -0.103 | -0.08 |
| 6.944 | 0.138 | 0.117 | 0.041 | -0.071 | -0.184 | -0.253 | -0.223 | -0.111 | -0.103 | -0.092 | -0.081 | -0.096 | -0.07 |
| 7.444 | 0.138 | 0.117 | 0.041 | -0.071 | -0.184 | -0.253 | -0.213 | -0.111 | -0.100 | -0.089 | -0-078 | -0.025 | -0.00 |
| 7.944 | 0.140 | 0.117 | 0.044 | -0.060 | -C.177 | -0.246 | -0.205 | -0.006 | -0.026 | -0.085 | -9.074 | -0.065 | -0.05 |
| 8.444 | 0.136 | 0.113 | 0.040 | -0.C58 | -0.180 | -0.249 | -0.209 | -0.095 | -0.095 | -0.089 | -0.078 | -0.092 | -0.05 |
| 8.944 | 0.135 | 0.111 | 0.038 | -0.068 | -0.180 | -0.242 | -0.202 | -0.092 | -0.096 | -0.085 | -0.078 | -0.096 | -0.05 |
| 9.444 | 0.133 | 0.106 | 0.035 | -0.075 | -0.184 | -0.245 | -0.202 | -0.093 | -0.096 | -0.089 | -0.081 | -0.103 | -0.06 |
| 9.944 | 0.134 | 0.109 | 0.039 | -0.064 | -C.180 | -0.235 | -0.191 | -0.009 | -0.092 | -0.085 | -0.078 | -0.100 | -0.06 |
| 10.444 | 0.135 | 0.110 | 0.042 | -0.065 | -0.171 | -0.226 | -0.183 | -0.085 | -0.089 | -0.079 | -0.073 | -0.095 | -0.05 |
| 10.944 | 0.137 | 0.114 | 0.044 | -0.059 | -C.169 | -0.224 | -0.181 | -0.083 | -0.087 | -0.079 | -0.075 | -0.098 | -0.06 |
| 11.444 | 0.133 | 0.107 | 0.038 | -0.065 | -C.175 | -0.228 | -C.184 | -0-083 | -0.037 | -0.081 | -0.091 | -0.103 | -0.07 |
| 11.944 | 0.135 | 0.110 | 0.041 | -0.C63 | -0.168 | -0.217 | -0.173 | -0.079 | -0.079 | -0.075 | -0.077 | -0.094 | -0.06 |
| 12.444 | 0.134 | 0.108 | 0.039 | -0.061 | -C.168 | -0.219 | -0.171 | -0.077 | -0.075 | -0.072 | -0.075 | -0.090 | -C.CE |
| 12.944 | 0.140 | 0.116 | 0.045 | -0.057 | -0.158 | -0.205 | -0.164 | -0.072 | -0.068 | -0.068 | -0.073 | -0.079 | -0.06 |
| 13.444 | 0.132 | 0.109 | 0.038 | -0-065 | -0.158 | -0.204 | -0.160 | -0.072 | -0.064 | -0.068 | -0+073 | -0.079 | -0.06 |
| 13.944 | 0.128 | 0.104 | 0.032 | -0.070 | -0.158 | -0.205 | -0.160 | -0.070 | -0.060 | -0.066 | -0.077 | -0.079 | -0.07 |
| 14.444 | 0.131 | 0.107 | 0.034 | -0.067 | -C.155 | -0.202 | -0.155 | -0.067 | -0.C56 | -0.054 | -0.075 | -0.070 | -0.06 |
| 14.944 | 0.134 | 0.110 | 0.035 | -0.063 | -0.151 | -0.198 | -0.151 | -0.064 | -0.051 | -0.062 | -0.073 | -0.068 | -0.06 |
| 15.444 | 0.131 | 0.109 | 0.034 | -0.053 | -0.145 | -0.192 | -0.143 | -0.052 | -0.049 | -0.060 | -0.072 | -0.066 | -0.06 |
| 15.944 | 0.135 | 0.111 | 0.037 | -0.059 | -C-142 | -0.189 | -0.139 | -0.058 | -0.045 | -0.057 | -0.070 | -0.062 | -0.06 |
| 16.444 | 0.128 | 0.109 | 0.030 | -0.065 | -C.145 | -0.190 | -0.139 | -0.059 | -0.047 | -0.059 | -0.072 | -0.052 | -0.06 |
| 16.944 | 0.129 | 0.106 | 0.030 | -0.065 | -0.142 | -0.185 | -0.134 | -0.057 | -0.045 | -0.055 | -0.068 | -0.059 | -0.06 |
| 17.444 | 0.135 | 0.117 | 0.036 | -0.057 | -0.136 | -0.181 | -0.128 | -0.053 | -0.045 | -0.053 | -0.062 | -0.053 | -0.06 |
| 17.944 | 0.136 | 0.112 | 0.038 | -0.050 | -0.128 | -0.175 | -0.119 | -0.051 | -0.043 | -0.049 | -0.059 | -0.051 | -0.05 |
| 18.444 | 0.134 | 0.113 | 0.036 | -0.054 | -0.132 | -0.175 | -0.117 | -0.047 | -0.043 | -0.047 | -0.055 | -0.047 | -0.05 |
| 18.944 | 0.142 | 0.119 | 0.045 | -0.040 | -0.121 | -0.162 | -0.105 | -0.040 | -0.042 | -0.040 | -0.045 | -0.040 | -C.04 |
| 19.444 | 0.147 | 0.119 | 0.053 | -0.031 | -0.113 | -0.153 | -0.094 | -0.030 | -0.038 | -0.034 | -0.034 | -0.032 | -0.03 |
| | | | | | -0.113 | -0.151 | -0.085 | -0.030 | -0.028 | -0.021 | -0.019 | -0.015 | -0.01 |
| 19.944 | C.161 | 0.137 | 0.063 | -0.023 | | | | -0.004 | | -0.006 | 0.001 | -0.000 | 0.00 |
| 20.444 | 0.171 | 0.155 | 0.082 | 0.001 | -0.095 | -0.134 | -0.042 | 0.016 | 0.003 | 0.016 | 0.024 | 0.022 | 0.0 |
| 20.944 | 0.180 | 0.160 | 0.092 | 0.013 | -0.076 | -0.111 | | | | | | | 0.36 |
| 21.444 | 0.195 | 0.172 | 0.105 | 0.032 | -0.057 | -0.068 | 0.001 | 0.050 | 0.038 | 0.055 | 0.066 | 0.064 | 0.3 |

Table 1.28 Experimental pressure coefficients c_p for α = 20°, M_{∞} = 1.00 and Re_D = 6.1 · 10 5

| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
|-------------|--------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 1.022 | 0.327 | 0.238 | 0.154 | C.564 | 0.401 | -0.091 | 0.129 | 0.061 | 0.041 | -0.151 | -0.029 | -0.00 |
| 0.482 | 0.781 | 0.752 | 0.663 | 0.528 | 0.335 | 0.178 | 0.020 | -0.072 | -0.164 | -0.196 | -0.196 | -C.182 | -C.17 |
| 0.731 | 0.554 | 0.529 | 0.443 | 0.313 | 0.120 | -0.029 | -0.171 | -0.277 | -0.341 | -0.359 | -0-342 | -0.325 | -0.30 |
| 0.980 | 0.312 | 0.290 | 0.219 | 0.091 | -0.088 | -0.228 | -0.370 | -0.469 | -0.522 | -0.523 | -0.492 | -C.457 | -0.44 |
| 1.238 | 0.123 | 0.082 | 0.006 | -0.113 | -0.277 | -0.413 | -0.544 | -0.633 | -0.675 | -0.655 | -0.617 | -0.575 | -0.55 |
| 1.500 | -0.070 | -0.084 | -0.151 | -0.261 | -0.413 | -0.528 | -0.641 | -0.717 | -0.734 | -0.689 | -0.631 | -0.572 | -0.55 |
| 1.944 | 0.027 | 0.009 | -0.071 | -0.198 | -0.375 | -0.514 | -0.655 | -0.717 | -0.713 | -0.571 | -0.398 | -0.276 | -0.25 |
| 2.444 | -0.008 | 0.005 | -0.085 | -0.220 | -0.410 | -0.563 | -0.715 | -0.733 | -0.491 | -0.370 | -0.200 | -0.116 | -0.06 |
| 2.944 | -0.001 | -0.019 | -0.109 | -C.250 | -0.437 | -0.608 | -0.095 | -0.438 | -0.413 | -0.356 | -0.151 | -0.029 | -0.00 |
| 3.444 | -0.008 | -0.030 | -0.135 | -0.285 | -0.465 | -0.639 | -0.387 | -0.305 | -0.355 | -0.453 | -0.384 | -0.071 | -0.02 |
| 3.744 | -0.011 | -0.043 | -0.144 | -0.292 | -0.469 | -0.343 | -0.387 | -0.193 | -0.234 | -0.443 | -0.276 | -0.C71 | -0.02 |
| 4.444 | -0.015 | -0.050 | -0.123 | -0.163 | -0.116 | -0.298 | -0.193 | -0.102 | -0.091 | -0.119 | -C.178 | 0.063 | 0.07 |
| 4.944 | 0.103 | 0.063 | -0.029 | -0.135 | -0.120 | -0.169 | -0.133 | -0.075 | -0.053 | -0.043 | -0.144 | -0.015 | 0.01 |
| 5.444 | 0.132 | 0.148 | -0.015 | -0.124 | -0.127 | -0.193 | -0.133 | -0.054 | -0.039 | -0.043 | -0.084 | -0.074 | -0.04 |
| 5.944 | 0.192 | 0.171 | 0.105 | 0.006 | -0.148 | -0.193 | -0.154 | -0.064 | -0.050 | -0.046 | -0.050 | -0.086 | -0.07 |
| 6.444 | 0.189 | 0.169 | 0.100 | -0.001 | -0.148 | -0.196 | -0.172 | -0.078 | -0.050 | -0.057 | -0.053 | -0.074 | -0.C |
| 6.944 | 0.179 | 0.164 | 0.098 | -0.005 | -C.158 | -0.207 | -0.186 | -0.088 | -0.067 | -0.067 | -0.054 | -0.067 | -0.06 |
| 7.444 | 0.179 | 0.164 | 0.098 | -0.C05 | -0.158 | -0.207 | -0.200 | -0.088 | -0.074 | -0.071 | -0.067 | -0.064 | -0.00 |
| 7.944 | 0.161 | 0.143 | 0.076 | -0.019 | -0.158 | -0.224 | -0.200 | -0.075 | -0.074 | -0.074 | -0.070 | -0.064 | -0.0 |
| 8.444 | 0.147 | 0.128 | 0.062 | -0.043 | -0.159 | -0.235 | -0.207 | -0.045 | -0.077 | -0.078 | -C.074 | -0.071 | -0.06 |
| 8.944 | 0.139 | 0.117 | 0.049 | -0.054 | -0.169 | -0.235 | -0.200 | -0.072 | -0.074 | -0.074 | -0.074 | -0.071 | -0.06 |
| 9.444 | 0.134 | 0.107 | 0.035 | -0.071 | -0.172 | -0.235 | -0.196 | -0.088 | -0.077 | -0.078 | -0.077 | -0.074 | -0.C |
| 9.944 | 0.132 | 0.107 | 0.033 | -0.068 | -0.169 | -0.224 | -0.186 | -0.085 | -0.074 | -0.074 | -0.074 | -0.074 | -0.06 |
| 10.444 | 0.137 | 0.109 | 0.034 | -0.071 | -0.156 | -0.218 | -0.174 | -0.083 | -0.070 | -0.068 | -0.068 | -0.070 | -0.0 |
| 10.944 | 0.141 | 0.114 | 0.038 | -0.065 | -C.158 | -0.216 | -0.172 | -0.083 | -0.072 | -0.072 | -0.070 | -0.072 | -0.06 |
| 11.444 | 0.137 | 0.112 | 0.036 | -C.067 | -0.165 | -0.221 | -0.183 | -0.083 | -0.075 | -0.075 | -0.074 | -C.081 | -0.07 |
| 11.944 | 0.135 | 0.115 | 0.043 | -0.058 | -0.160 | -0.216 | -0.178 | -0.083 | -0.075 | -0.072 | -0.072 | -0.075 | -0.0 |
| 12.444 | 0.132 | 0.113 | 0.045 | -0.056 | -0.160 | -0.221 | -0.179 | -0.083 | -0.073 | -0.070 | -0.070 | -0.075 | -0.0 |
| 12.944 | 0.137 | 0.117 | 0.053 | -0.047 | -0.155 | -0.210 | -0.172 | -0.079 | -0.070 | -0.065 | -0.066 | -0.068 | -0.0 |
| 13.444 | 0.130 | 0.109 | 0.047 | -0.053 | -0.158 | -0.210 | -0.167 | -0.076 | -0.070 | -0.068 | -0.368 | -0.070 | -0.0 |
| 13.944 | 0.128 | 0.103 | 0.039 | -0.062 | -0.162 | -0.209 | -0.163 | -0-074 | -0.070 | -0.070 | -0.072 | -0.075 | -0.0 |
| 14.444 | 0.134 | 0.104 | 0.039 | -0.062 | -0.161 | -0.210 | -0.160 | -0.074 | -0.070 | -0.070 | -0.073 | -0.072 | -0.00 |
| 14.944 | 0.139 | 0.106 | 0.038 | -0.062 | -0.160 | -0.210 | -0.158 | -0.074 | -0.070 | -0.070 | -0.074 | -0.074 | -0.0 |
| 15.444 | 0.136 | 0.111 | 0.034 | -0.064 | -0.164 | -0.210 | -C.158 | -0.072 | -0.070 | -0.072 | -0.075 | -0.075 | -0.0 |
| 15.944 | 0.133 | 0.115 | 0.034 | -0.067 | -0.169 | -0.216 | -0.160 | -0.074 | -0.070 | -0.074 | -0.075 | -0.074 | -0.0 |
| 16.444 | 0.123 | 0.104 | 0.027 | -0.071 | -0.173 | -C.218 | -0.160 | -0.074 | -0.073 | -0.075 | -0.079 | -0.075 | -0.0 |
| 16.944 | 0.120 | 0.103 | 0.029 | -0.073 | -0.166 | -0.216 | -0.153 | -0.074 | -0.072 | -0.075 | -0.077 | -0.074 | -0.0 |
| 17.444 | 0.125 | 0.103 | 0.033 | -0.067 | -0.166 | -0.210 | -0.149 | -0.070 | -0.068 | -0.068 | -0.072 | -0.068 | -9.06 |
| 17.944 | 0.124 | 0.095 | 0.030 | -0.069 | -0.162 | -0.205 | -0.131 | -0.061 | -0.059 | -0.068 | -0.070 | -0.063 | -0.00 |
| 18.444 | 0.123 | 0.094 | 0.025 | -0.073 | -0.160 | -0.185 | -0.128 | -0.067 | -0.063 | -0.065 | -0.068 | -0.061 | -0.00 |
| 18.944 | 0.136 | 0.104 | 0.033 | -0.058 | -0.135 | -0.191 | -0.117 | -0.051 | -0.047 | -0.052 | -0.052 | -0.047 | -0.04 |
| 19.444 | 0.138 | 0.117 | 0.044 | -0.040 | -0.124 | -0.164 | -0.094 | -0.036 | -0.036 | -0.041 | -0.039 | -0.032 | |
| 19.944 | 0.155 | 0.135 | 0.046 | -0.049 | -0.126 | -0.166 | -0.076 | -0.020 | -0.014 | -0.020 | -0.018 | | -0.01 |
| 20.444 | 0.172 | 0.154 | 0.083 | -0.002 | -0.092 | -0.130 | -0.049 | | | | | -0.011 | -0.00 |
| 20.944 | | | 0.101 | | | | | 0.005 | 0.011 | 0.003 | 0.005 | 0.012 | 0.01 |
| | 0.197 | 0.167 | | 0.020 | -0.065 | -0.090 | -0.013 | 0.034 | 0.041 | 0.034 | 0.034 | 0.040 | 0.05 |
| 21.444 | 0.206 | 0.184 | 0.117 | 0.045 | -0.034 | -0.034 | 0.036 | 0.079 | 0.087 | 0.080 | 0.084 | 0.092 | 0.3 |

Table 1.29 Experimental pressure coefficients c_p for α = 20°, M_{∞} = 1.1 and Re_D = 6.2 · 10⁵

| | | | | | | Р | | | | | | | |
|-------------|---------|-------|--------|--------|--------|----------|---------|--------|--------|--------|--------|--------|------|
| Coordinates | | | | | | Polar an | gle, ф, | deg. | | | | | |
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 1.081 | 0.423 | 0.333 | 0.266 | 0.079 | 0.494 | 0.002 | 0.236 | 0.171 | 9.150 | 0.157 | 0.053 | 0.0 |
| 0.482 | 0.845 | 0.810 | 0.734 | 0.605 | 0.447 | 0.273 | 0.129 | 0.025 | -0.043 | -0.072 | -0.066 | -0.06 | -0.0 |
| 0.731 | 0.627 | 0.603 | 0.522 | 0.398 | C.250 | 0.080 | -0.050 | -0.147 | -0.211 | -0.231 | -0.215 | -0.202 | -0.1 |
| 0.980 | 0.395 | 0.373 | 0.298 | 0.185 | 0.043 | -0.105 | -0.238 | -0.330 | -0.380 | -0.383 | -0.351 | -0.326 | -0.3 |
| 1.238 | 0.191 | 0.169 | 0.095 | -0.011 | -0.145 | -0.281 | -0.400 | -0.486 | -0.523 | -0.506 | -0.467 | -0.435 | -0.4 |
| 1.500 | 0.049 | 0.032 | -0.034 | -0.132 | -0.250 | -C.375 | -0.484 | -0.557 | -0.581 | -0.542 | -0.487 | -0.435 | -0.4 |
| 1.944 | 0.109 | 0.100 | 0.015 | -0.096 | -0.240 | -0.385 | -0.511 | -0.587 | -0.584 | -0.477 | -C.315 | -0.199 | -0.1 |
| 2.444 | 0.076 | 0.090 | 0.020 | -0.110 | -C.265 | -0.428 | -0.566 | -0.649 | -0.432 | -0.286 | -0.224 | -0.053 | -0.0 |
| 2.944 | 0.086 | 0.066 | -0.014 | -0.145 | -0.292 | -0.467 | -0.450 | -0.414 | -0.351 | -0.280 | -0.254 | 0.053 | 0.0 |
| 3.444 | 0.076 | 0.425 | 0.055 | -0.025 | -C.160 | -0.320 | -0.378 | -0.268 | -0.315 | -0.383 | -0.315 | -0.004 | 0.0 |
| 3.944 | 0.070 | 0.047 | -0.047 | -0.181 | -0.344 | -0.496 | -0.378 | -0-173 | -0.225 | -0.455 | -0.254 | -0.004 | 0.0 |
| 4.444 | 0.059 | 0.035 | -0.063 | -0.201 | -C.361 | -0.236 | -0.173 | -C.138 | -0.170 | -0.231 | -0-228 | -0.004 | 0.0 |
| 4.944 | 0.053 | 0.025 | 0.002 | -0.077 | -0.187 | -0.262 | -0.199 | -0-157 | -0.140 | -0.121 | -0.208 | -0.099 | -0.0 |
| 5.444 | 0.140 | 0.107 | 0.032 | -0.070 | -0.181 | -C.278 | -0.235 | -0.160 | -0.121 | -0.103 | -0.150 | -0.144 | -0.1 |
| 5.944 | 0.131 | 0.114 | 0.027 | -0.067 | -0.187 | -0.284 | -0.258 | -0-144 | -0.131 | -0.121 | -0.127 | -0.163 | -0.1 |
| 6.444 | 0.127 | 0.107 | 0.022 | -0.083 | -0.194 | -0.284 | -0.254 | -0.147 | -0.131 | -0-127 | -0.124 | -0.144 | -0.1 |
| 6.944 | 0.124 | 0.108 | 0.030 | -0.080 | -0.134 | -0.297 | -0.271 | -0.131 | -0.121 | -0-114 | -0.131 | -0.105 | -0.1 |
| 7.444 | 0.124 | 0-108 | 0.030 | -0.080 | -0.194 | -0.297 | -0.238 | -0.131 | -0.114 | -0.118 | -0.098 | -0.114 | -0.0 |
| 7.944 | 0.127 | 0.095 | 0.025 | -0.090 | -0.210 | -0.268 | -0.212 | -0.116 | -0.111 | -0.121 | -0.108 | -0.111 | -0.1 |
| 8.444 | 0.128 | 0.102 | 0.019 | -0.093 | -0.204 | -0.281 | -0.228 | -0-116 | -0.127 | -0.134 | -0.121 | -0.140 | -0.1 |
| 8.944 | 0.113 | 0.102 | 0.028 | -0.086 | -0.197 | -0.284 | -0.235 | -0.131 | -0.121 | -0.115 | -0.131 | -0.118 | -0.1 |
| 9.444 | 0.109 | 0.080 | 0.009 | -0.096 | -C.200 | -0.291 | -0.225 | -0.121 | -0.111 | -0.108 | -c.101 | -0.108 | -0.0 |
| 9.944 | 0.095 | C.077 | 0.012 | -0.093 | -0.201 | -0.281 | -0.173 | -0.092 | -0.092 | -0.078 | -0.085 | -0.067 | -0.0 |
| 10.444 | 0.099 | 0.062 | 0.017 | -0.084 | -0.174 | -0.215 | -0.157 | -0.077 | -0.077 | -0.072 | -0.070 | -0.070 | -0.0 |
| 10.944 | 0.130 | 0.109 | 0.035 | -0.061 | -C.170 | -C.223 | -0.171 | -0.079 | -0.070 | -0.070 | -0.065 | -0.070 | -0.0 |
| 11.444 | 0.105 | 0.097 | 0.029 | -0.068 | -0.169 | -0.213 | -0.152 | -0.157 | -0.073 | -0.073 | -0.078 | -0.084 | -0.0 |
| 11.944 | 0.106 | 0.079 | 0.013 | -0.090 | -0.187 | -0.183 | -0.131 | -0.071 | -0.068 | -0.063 | -0.G72 | -0.C79 | -0.0 |
| 12-444 | 0.109 | 0.085 | 0.012 | -0.085 | -C.174 | -0.196 | -0.132 | -0.060 | -0.055 | -0.053 | -0.057 | -0.070 | -0.0 |
| 12.944 | . 0.151 | 0.129 | 0.050 | -0.024 | -0.164 | -0.198 | -0.151 | -0.059 | -0.040 | -0.008 | -0.060 | -0.022 | -0.0 |
| 13.444 | 0.128 | 0.114 | 0.058 | -0.046 | -0.115 | -0.126 | -0.089 | C.023 | 0.018 | 0.010 | -0.005 | -0.003 | -0.0 |
| 13.944 | 0.188 | 0.107 | 0.026 | -0.078 | -0.169 | -0.116 | -0.069 | -0.014 | -0.013 | -0.017 | -0.010 | -0.030 | -0.0 |
| 14.444 | 0.189 | 0.147 | 0.074 | -0.029 | -0.121 | -0.148 | -0.035 | -0.029 | -0.028 | -0.029 | -0.023 | -0.032 | -0.0 |
| 14.944 | 0.190 | 0.187 | 0.121 | 0.020 | -0.073 | -0.180 | -0.131 | -0.045 | -0.042 | -0.042 | -0.035 | -0.047 | -0.0 |
| 15.444 | 0.167 | 0.156 | 0.088 | -0.015 | -0.105 | -0.196 | -0.146 | -0.067 | -0.065 | -0.067 | -0.052 | -0.065 | -0.0 |
| 15.944 | 0.158 | 0.138 | 0.066 | -0.041 | -0.135 | -0.217 | -0.152 | -0.087 | -0.082 | -0.082 | -0.072 | -0.075 | -0.0 |
| 16.444 | 0.151 | 0.128 | 0.059 | -0.044 | -0.132 | -0-247 | -0.187 | -0.097 | -0.090 | -0.089 | -0.092 | -0.082 | -0.0 |
| 16.944 | 0.129 | 0.120 | 0.046 | -0.054 | -C.150 | -0.254 | -0.186 | -0.091 | -0.084 | -0.082 | -0.094 | -0.075 | -0.0 |
| 17.444 | 0.113 | 0.095 | 0.027 | -0.078 | -0.175 | -0.223 | -0.154 | -0.064 | -0.064 | -0.077 | -0-082 | -0.054 | -0.0 |
| 17.944 | 0.134 | 0.104 | 0.017 | -0.088 | -0.185 | -0.212 | -0.126 | -0.079 | -O.C82 | -0.097 | -0.080 | -0.084 | -0.0 |
| 19.444 | 0.111 | 0.095 | 0.022 | -0.081 | -0.182 | -0.227 | -0.142 | -0.096 | -0.095 | -0.107 | -0.102 | -0.094 | -0.0 |
| 18.944 | 0.103 | 0.071 | 0.013 | -0.085 | -0.190 | -0.227 | -0.136 | -0.097 | -0.095 | -0.100 | -0.099 | -0.084 | -C.0 |
| 19.444 | 0.109 | 0.087 | 0.010 | -0.083 | -C.174 | -0.233 | -0.144 | -0.084 | -0.085 | -0.104 | -0.100 | -0.087 | -0.0 |
| 19.944 | 0.096 | 0.094 | 0.028 | -0.061 | -0.155 | -0.198 | -0.119 | -0.031 | -0.084 | -0.095 | -0.092 | -C.085 | -0.0 |
| 20-444 | 0.102 | 0.084 | 0.008 | -0.083 | -C.167 | -0.195 | -0.131 | -0.CSI | -0.077 | -7.075 | -0.095 | -0.082 | -C.0 |
| 20-944 | 0.115 | 0.076 | 0.003 | -0.081 | -C-172 | -0.185 | -0.122 | -0.084 | -0.082 | -0.095 | -0.090 | -0.080 | -0.0 |
| 21.444 | 0.111 | 0.079 | 0.012 | -0.084 | -0.180 | -0.212 | -0.119 | -0.062 | -0.038 | -0.037 | -0.043 | -0.005 | 0.0 |

Table 1.30 Experimental pressure coefficients c_p for α = 20°, M_{∞} = 1.2 and Re_D = 6.3 · 10⁵

| | | | | | | Р | | | ω | | D | | |
|-------------|-------|-------|--------|--------|--------|----------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar ar | ıgle, φ, | deg. | | | | | |
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 163 | 180 |
| 0.251 | 1.125 | 0.470 | 0.376 | 0.314 | 0.163 | 0.555 | 0.095 | 0.298 | 0.228 | 0.203 | 0.210 | 0.069 | 0.10 |
| 0.482 | 0.889 | 0.863 | 0.779 | 0.653 | 0.505 | 0.340 | 0.192 | 0.089 | 0.017 | -0.011 | -0.008 | -0.00; | 0.00 |
| C.731 | 0.675 | 0.651 | 0.571 | 0.450 | 0.311 | 0.145 | 0.020 | -0.077 | -0.147 | -0.166 | -0.157 | -0.138 | -C.13 |
| 0.980 | 0.447 | 0.425 | 0.352 | 0.244 | 0.112 | -0.033 | -0.160 | -0.250 | -0.301 | -0.308 | -0.278 | -0.253 | -0.22 |
| 1.230 | 0.238 | 0.218 | 0.148 | 0.045 | -0.074 | -0.204 | -0.315 | -0.396 | -0.434 | -0.426 | -0.393 | -0.361 | -0.34 |
| 1.500 | 0.121 | 0.103 | 0.039 | -0.055 | -0.164 | -0.284 | -0.395 | -0.468 | -0.499 | -0.475 | -0.414 | -0.377 | -0.33 |
| 1.944 | 0.148 | 0.132 | 0.053 | -0.052 | -0.177 | -0.318 | -0.433 | -0.511 | -0.529 | -0.456 | -0.293 | -0.197 | -0.16 |
| 2.444 | 0.105 | 0.115 | 0.050 | -0.070 | 0.161 | -0.355 | -0.479 | -0.570 | -0.508 | -0.296 | -0.216 | -0.075 | -0.01 |
| 2.944 | 0.115 | 0.095 | 0.023 | -0.102 | -0.236 | -0.396 | -0.495 | -0.514 | -0.354 | -0.317 | -0.222 | 0.060 | C.10 |
| 3,444 | 0.105 | 0.075 | 0.005 | -0.135 | -0.265 | -0.414 | -0.510 | -0.297 | -0.323 | -0.425 | -0-315 | -0.024 | 0.01 |
| 3.944 | 0.097 | 0.072 | -0.008 | -0.133 | -0.276 | -0.442 | -0.510 | -0.222 | -0.252 | -0.472 | -0.327 | -0.024 | 0.01 |
| 4.444 | 0.126 | 0.080 | -0.005 | -0.130 | -0.289 | -0.417 | -0.172 | -0.160 | -0.199 | -0.317 | -0.281 | -0.021 | -0.00 |
| 4.944 | 0.087 | 0.068 | -0.015 | -0.145 | -0.289 | -0.265 | -0.172 | -0-145 | -0.162 | -0.141 | -0.266 | -0.092 | -0.05 |
| 5.444 | 0.082 | 0.048 | -C.045 | -0.149 | -0.177 | -0.262 | -0.191 | -0.151 | -0.125 | -0.095 | -0.145 | -0.120 | -0.09 |
| 5.944 | 0.077 | 0.079 | 0.017 | -0.086 | -0.202 | -0.281 | -0.207 | -0.129 | -0.110 | -0.101 | -0.114 | -0.135 | -0.12 |
| 6.444 | 951.0 | 0.118 | 0.031 | -0.080 | -0.198 | -0.269 | -0.210 | -0.126 | -0.116 | -0.119 | -0.120 | -0.133 | -0.12 |
| 6.944 | 0.139 | 0.110 | 0.013 | -0.096 | -0.205 | -0.253 | -0.222 | -0-117 | -0.098 | -0.110 | -0.110 | -0.113 | -C.11 |
| 7.444 | C.139 | 0.110 | 0.013 | -0.096 | -0.205 | -0.253 | -0.173 | -0.117 | -0.095 | -0.107 | -0.075 | -0.099 | -0.0 |
| 7.944 | 0.119 | 0.106 | 0.033 | -0.068 | -0.183 | -0.241 | -0.197 | -0.095 | -0.092 | -0.091 | -0.095 | -0.092 | -0.08 |
| 6.444 | 0.138 | 0.106 | 0.023 | -0.086 | -0.186 | -0.241 | -0.163 | -0. 35 | -0.095 | -0.085 | -0.093 | -0.092 | -0.0 |
| 8.944 | 0.112 | 0.090 | 0.023 | -0.071 | -0.161 | -0.241 | -0.176 | -0.033 | -0.009 | -0.091 | -0.036 | -0.081 | -0.08 |
| 9.444 | 0.131 | 0.107 | 0.034 | -0.068 | -0.167 | -0.228 | -0.148 | -0.689 | -0.039 | -0.085 | -0.092 | -0.097 | -0.0 |
| 9.944 | 0.136 | 0.116 | 0.038 | -0.068 | -0.167 | -0.238 | -0.176 | -0.080 | -0.082 | -0.082 | -0-076 | -0.080 | -0.00 |
| 10.444 | 0.143 | 0.125 | 0.033 | -0.067 | -0.167 | -0.206 | -0.143 | -0.080 | -0.082 | -0.074 | -0.075 | -0.071 | -0.0 |
| 10.944 | 0.149 | 0.10* | 0.046 | -0.056 | -0.135 | -0.226 | -0.170 | -0.086 | -0.080 | -0.078 | -0.081 | -0.070 | -0.0 |
| 11.444 | 0.119 | 0.101 | 0.026 | -0.070 | -0.172 | -0.228 | -0.162 | -0.064 | -0.036 | -0.011 | -0.060 | -0.009 | -0.0 |
| 11.944 | 0.140 | 0.126 | 0.063 | -0.027 | -0.122 | -0.155 | -0.063 | -0.01t | -0.023 | -0.038 | -0.011 | -0.047 | -0.01 |
| 12.444 | 0.150 | 0.123 | 0.048 | -0.056 | -C.146 | -0.179 | -0.121 | -0.052 | -0.060 | -2.263 | -0.057 | -0.057 | -0.0 |
| 12.944 | 0.183 | 0.164 | 0.096 | 0.004 | -0.096 | -0.207 | -0.149 | -0.068 | -0.068 | -0.071 | -0.070 | -0.076 | -0.0 |
| 13.444 | 0.150 | 0.146 | 0.084 | -0.014 | -0.115 | -0.230 | -0.175 | -0.088 | -0.084 | -0.074 | -0.086 | -0.082 | -0.0 |
| 13.944 | 0.143 | 0.133 | 0.063 | -0.046 | -0.134 | -0.249 | -0.188 | -0.081 | -0.077 | -0.071 | -0.068 | -0.060 | -0.0 |
| 14.444 | 0.128 | 0.117 | 0.046 | -0.063 | -C.151 | -0.257 | -0.165 | -0.079 | -0.081 | -0.080 | -0.076 | -0.073 | -0.0 |
| | 0.112 | 0.093 | 0.030 | -0.080 | -0.168 | -0.266 | -0.140 | -0.076 | -0.085 | -0.089 | -0.084 | -0.081 | -0.0 |
| 15.444 | 0.108 | 0.089 | 0.002 | -0.109 | -0.196 | -C.178 | -0.122 | -0.030 | -0.033 | -0.100 | -0.092 | -0.092 | -0.0 |
| 15.744 | | 0.093 | 0.027 | -0.073 | -0.149 | -0.202 | -0.108 | -0.072 | -0.079 | -0.090 | -0.097 | -0.095 | -0.0 |
| | 0.117 | | | | | -0.182 | | -0.073 | | -0.074 | -0.092 | -0.085 | -0.0 |
| 16.444 | 0.128 | 0.100 | 0.027 | -0.060 | -0.181 | -0.162 | -0.131 | -0.040 | -0.050 | -0.055 | -0.039 | -0.054 | -0.0 |
| 16.944 | 0.144 | 0.106 | 0.038 | | | -0.202 | | | | -0.081 | -0.070 | -0.065 | -0.00 |
| 17.444 | 0.161 | 0.146 | 0.084 | -0.022 | -0.123 | | -0.132 | -0.078 | -0.077 | | | | |
| 17.944 | 0.141 | 0.127 | 0.054 | -0.054 | -0.155 | -0.212 | -0.153 | -0.092 | -0.097 | -0.098 | -0.089 | -0.084 | -0.0 |
| 16.444 | 0.121 | 0.107 | 0.038 | -0.059 | -0.151 | -0.265 | -0.175 | -0.102 | -0.081 | -0.085 | -0.076 | -0.073 | |
| 18.944 | 0.100 | 0.084 | 0.023 | -0.080 | -0.175 | -0.234 | -0.103 | -0.081 | -0.075 | -0.101 | -0.094 | -0.092 | -0.0 |
| 19.444 | 0.082 | 0.061 | -0.008 | -0.111 | -0.186 | -0.199 | -0.124 | -0.(83 | -0.073 | -0.092 | -0.095 | -0.086 | -0.0 |
| 17.944 | 0.110 | 0.111 | 0.036 | -0.064 | -0.165 | -C.167 | -0.108 | -0.054 | -0.057 | -0.063 | -0.063 | -0.090 | -0.0 |
| 20.444 | 0.121 | 0.095 | 0.023 | -0.072 | -0.173 | -0.212 | -0.148 | -0.075 | -0.063 | -0.073 | -0.076 | -0.081 | -0.0 |
| 20.944 | 0.126 | 0.117 | 0.053 | -0.027 | -0.135 | -0.206 | -0.143 | -0.091 | -0.081 | -0.079 | -0.083 | -0.06? | -0.00 |
| 21.444 | 0.140 | 0.109 | 0.036 | -0.062 | -0.173 | -0.214 | -0-142 | -0.065 | -0.054 | -0.061 | -0.047 | -0.035 | 0.0 |

Table 1.31 Experimental pressure coefficients c_p for α 25°, M_{∞} = 0.7 and Re_D = 5.2 · 10⁵

| Coordinates | | | | | | Polar | angle, Φ | , deg. | | | | | |
|-------------|-------|-------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|-------|
| ¥/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.446 | 0.395 | 0.263 | 0.096 | 0.275 | 0.016 | -0.329 | -0.355 | -0.412 | -0.392 | -0.302 | -0.223 | -0.11 |
| 0.482 | 0.760 | 0.707 | 0.559 | 0.343 | 0.082 | -0.167 | -0.392 | -0.527 | -0.579 | -0.534 | -0-506 | -0.441 | -0.42 |
| 0.731 | 0.548 | 0.495 | 0.352 | 0.141 | -0.114 | -0.355 | -0.549 | -0.653 | -0.667 | -0.612 | -0.553 | -C.45. | -0.43 |
| 0.980 | 0.330 | 0.280 | 0.143 | -C.058 | -C.292 | -0.517 | -0.690 | -0.762 | -0.725 | -7.654 | -0.517 | -0.457 | -0.42 |
| 1.238 | 0.171 | 0.123 | -0.010 | -0.199 | -0-407 | -0.606 | -0.737 | -0.737 | -0.672 | -0.627 | -0.370 | -0.301 | -0.20 |
| 1.500 | 0.072 | 0.032 | -0.095 | -0.278 | -0.470 | -0.638 | -0.732 | -0.678 | -0.589 | -0.381 | -0.261 | -0.171 | -0.15 |
| 1.944 | 0.164 | 0.119 | -0.005 | -0.189 | -0.381 | -0.476 | -0.606 | -0.549 | -0.381 | -0.219 | -0.130 | -0.020 | 0.03 |
| 2.444 | 0.183 | 0.140 | 0.020 | -0.180 | -0.370 | -0.528 | -0.580 | -0.491 | -0.276 | -0.177 | -0.172 | -0.067 | 0.04 |
| 2.944 | 0.187 | 0.141 | 0.021 | -0.173 | -0.360 | -0.502 | -0.535 | -0.424 | -0.198 | -0.188 | -C.298 | -0.22 | -0.17 |
| 3.444 | 0.195 | 0.150 | 0.025 | -0.160 | -0.349 | -0.485 | -0.502 | -0.356 | -0.167 | -0.157 | -0.266 | -0.207 | 0.01 |
| 3,944 | 0.202 | 0.152 | 0.026 | -0.152 | -0.334 | -C.465 | -0.502 | -0.282 | -0.151 | -0-120 | -0-188 | -C.202 | 0.01 |
| 4.444 | 0.204 | 0.152 | 0.026 | -0.147 | -0.328 | -0.455 | -0.424 | -0.256 | -0.146 | -0.115 | -0.120 | -0.223 | -0.08 |
| 4.944 | 0.204 | 0.154 | 0.032 | -0.147 | -0.323 | -0.444 | -0.403 | -0.251 | -0.146 | -0.120 | -0.109 | -0.171 | -0.0 |
| 5.444 | 0.206 | 0.155 | 0-032 | -0.141 | -0.318 | -0.439 | -0.388 | -0.256 | -0.141 | -0.110 | -0.109 | -0.135 | -C.0 |
| 5.944 | 0.205 | 0.136 | 0.037 | -0.136 | -0.313 | -0.434 | -0.378 | -0.240 | -0.135 | -0.110 | -0.104 | -C.124 | -0.0 |
| 6.444 | 0.205 | 0.158 | 0.037 | -0.131 | -0.312 | -0.423 | -0.372 | -0-219 | -0.125 | -0.105 | -0.099 | -0.114 | -0.0 |
| 6.944 | 0.206 | 0.161 | 0.037 | -0.126 | -0.3C2 | -0.418 | -0.367 | -0.204 | -0.120 | -0.099 | -0.099 | -0.119 | -0.0 |
| 7.444 | 0.206 | 0.161 | 0.037 | -0.126 | -0.302 | -0.418 | -0.356 | -0.204 | -0.139 | -0.094 | -0.104 | -0.119 | -0.0 |
| 7.944 | 0.208 | 0.166 | 0.037 | -0.121 | -0.292 | -C.402 | -0.351 | -0-177 | -0.104 | -0.094 | -0.120 | -0.11 | -0.0 |
| 8.444 | 0.205 | 0.164 | 0.037 | -0.126 | -0.297 | -0.397 | -0.351 | -0.177 | -0.099 | -0.094 | -0.099 | -0.114 | -0.0 |
| 8.944 | 0.202 | 0.152 | 0.037 | -0.121 | -0.297 | -0.392 | -0.344 | -0.162 | -0.074 | -0.074 | -0.104 | -0.104 | -0.0 |
| 9.444 | 0.201 | 0.159 | 0.032 | -0.126 | -0.297 | -0.386 | -0.344 | -0.156 | -0.099 | -0.105 | -0.109 | -0.104 | -0.0 |
| 9.944 | 0.204 | 0.162 | 0.037 | -0.121 | -0.291 | -0.375 | -0.323 | -0.141 | -0.094 | -0.099 | -0.104 | -0.083 | -0.0 |
| 10.444 | 0.206 | 0.164 | 0.040 | -0.120 | -0.280 | -0.369 | -0.319 | -0.122 | -0.092 | -0.098 | -0.106 | -0.087 | -0.0 |
| 10.944 | 0.206 | 0.165 | 0.037 | -0.115 | -0.280 | -0.362 | -0.305 | -0.1C3 | -0.092 | -0.098 | -0.106 | -0.100 | -0.0 |
| 11.444 | 0.203 | 0.161 | 0.034 | -0.117 | -0.280 | -0.354 | -0.297 | -0.100 | -0.100 | -0.103 | -0.114 | -0.113 | -0.0 |
| 11.944 | 0.205 | 0.162 | 0.037 | -0.112 | -0.267 | -0.343 | -0.270 | -0.087 | -0.078 | -0.101 | -0.116 | -0.117 | -0.0 |
| 12.444 | 0.204 | 0.161 | 0.041 | -0.112 | -0.264 | -0.338 | -0.251 | -0.090 | -0.097 | -0.098 | -0.116 | -0.113 | -0.0 |
| 12.944 | 0.207 | 0.165 | 0.045 | -0.104 | -0.251 | -C.324 | -0.227 | -0.084 | -0.098 | -0.106 | -0.116 | -C.1C8 | -0.0 |
| 13.444 | 0.204 | 0.159 | 0.040 | -0.109 | -0.245 | -0.316 | -0-206 | -0.082 | -0.100 | -0.117 | -0.108 | -0.113 | -0.0 |
| 13.944 | 0.199 | 0.154 | 0.037 | -0.109 | -0.240 | -C.316 | -0.192 | -0.087 | -0.103 | -7.111 | -0.105 | -0.113 | -0.0 |
| 14.444 | 0.200 | 0.155 | 0.040 | -0.102 | -0.232 | -0.313 | -0.185 | -0.092 | -0-104 | -0.105 | -C.1C3 | -9.115 | -0.0 |
| 14.944 | 0.200 | 0.156 | 0.044 | -0.096 | -0.224 | -0.310 | -0.173 | -0.098 | -0.106 | -0.098 | -0.100 | -0.119 | -0.0 |
| 15.444 | 0.199 | 0.156 | 0.043 | -0.093 | -0.219 | -0.300 | -0.173 | -0.106 | -0.105 | -0.093 | -0.087 | -0.116 | -0.0 |
| 15.944 | 0.203 | 0.157 | 0.049 | -0.085 | -0.216 | -0.300 | -0.176 | -0.114 | -0.106 | -0.090 | -0.079 | -0.116 | -0.09 |
| 16.444 | 0.196 | 0.157 | 0.043 | -0.093 | -0.221 | -0.308 | -0.195 | -0.128 | -0.103 | -0.087 | -0.079 | -0.118 | -0.0 |
| 16.944 | 0.196 | 0.153 | 0.044 | -0.090 | -0.221 | -0.310 | -0.214 | -0.146 | -0.038 | -0.085 | -0.071 | -0.115 | -0.0 |
| 17.444 | 0.201 | 0.159 | 0.050 | -0.085 | -0.221 | -0.311 | -0.234 | -0.154 | -0.095 | -0.082 | -0.071 | -0.111 | -0.0 |
| 17.944 | 0.200 | 0.161 | 0.054 | -0.082 | -0.221 | -0.313 | -0.252 | -0.165 | -0.089 | -7.082 | -0.076 | -0.105 | -0.0 |
| 18.444 | 0.198 | 0.159 | 0.050 | -0.087 | -0.229 | -0.319 | -0.276 | -0.165 | -0.087 | -0.082 | -0.076 | -0.102 | -0.0 |
| 18.944 | 0.200 | C.164 | 0.055 | -0.088 | -0.229 | -0.319 | -0.293 | -0.165 | -0.081 | -0.079 | -0.063 | -0.095 | -0.0 |
| 19.444 | 0.202 | 0.166 | 0.057 | -0.085 | -C.229 | -C.313 | -0.309 | -0.152 | -0.079 | -0.082 | -0.063 | -0.089 | -0.0 |
| 19.944 | 0.210 | 0.173 | 0.063 | -0.085 | -0.235 | -0.310 | -0.311 | -0.138 | -0.071 | -0.077 | -0.068 | -0.078 | -0.00 |
| 20.444 | 0.220 | 0.180 | 0.075 | -0.077 | -0.226 | -0.297 | -0.309 | -0.119 | -0.060 | -0.071 | -0.065 | -0.063 | -0.09 |
| 20.944 | 0.218 | 0.184 | 0.078 | -0.071 | -0.213 | -0.278 | -0.231 | -0.(95 | -0.049 | -0.060 | -0.057 | -0.057 | -0.04 |
| 21.444 | 0.214 | 0.192 | 0.088 | -0.055 | -0.197 | -0.237 | -0.248 | -0.063 | -0.030 | -0.036 | -0.041 | -0.030 | 0.2 |

Table 1.32 Experimental pressure coefficients c_p for α = 25°, M_{∞} = 0.8 and Re_D = 5.6 · 10⁵

| Coordinates | | | | | | Polar a | ngle, φ, | deg. | | | | | |
|-------------|-------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| x/D | 0 | 15 | 30 | 49 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.470 | 0.408 | 0.272 | 0.390 | 0. 40 | 0.080 | -0.287 | -0.296 | -0.364 | -0.352 | -0.046 | -0.221 | -0.12 |
| 0.482 | 0.788 | 0.736 | 0.597 | 0-182 | 0.135 | -0.116 | -0.344 | -0.474 | -0.570 | -0.561 | -0.523 | -0.457 | -0.45 |
| 0.731 | 0.567 | 0.519 | 0.381 | -0.037 | -0.076 | -0.322 | -0.528 | -0.661 | -0.714 | -0.670 | -0.615 | -0.519 | -C.50 |
| 0.780 | 0.337 | 0.291 | 0.159 | -0.209 | -0.269 | -0.506 | -0.717 | -0.827 | -0.845 | -0.771 | -0-589 | -0.568 | -0.53 |
| 1.238 | 0.158 | 0.113 | -0.015 | -0.315 | -C.422 | -0.648 | -0.849 | -0.023 | -0.806 | -0.631 | -0.413 | -0.318 | -0.29 |
| 1.500 | 0.039 | -0.002 | -0.129 | -0.205 | -0.515 | -0.718 | -0.814 | -C.753 | -0.601 | -0.382 | -0.264 | -0.177 | -0.15 |
| 1.944 | 0.148 | 0.104 | -0.019 | -0.190 | -0.400 | -0.516 | -0.634 | -0.538 | -0.374 | -0.212 | -0.137 | -0.011 | 0.0 |
| 2.444 | C.175 | 0.135 | 0.010 | -0.174 | -0.378 | -0.542 | -0.599 | -0.481 | -0.260 | -0.190 | -0.194 | -0.063 | 0.04 |
| 2.944 | 0.181 | 0.137 | 0.016 | C.121 | -0.357 | -0.507 | -0.545 | -0.392 | -0.199 | -0.212 | -0.308 | -0.221 | -0.17 |
| 3.444 | 0.195 | 0.145 | 0.025 | -0.143 | -0.343 | -0.481 | -0.493 | -0.305 | -0.177 | -0.190 | -0.347 | -0.204 | -0.00 |
| 3.944 | 0.177 | 0.151 | 0.029 | -0.143 | -0.322 | -0.455 | -0.493 | -0.235 | -0.159 | -0.190 | -C.264 | -C-204 | -0.00 |
| 4.444 | 0.201 | 0.153 | 0.033 | -C.139 | -0.317 | -0.438 | -0.409 | -0.208 | -0.164 | -0-142 | -0.155 | -0.243 | -0.09 |
| 4.944 | 0.203 | 0.154 | 0.040 | -0.139 | -0.308 | -0.433 | -0.397 | -0.213 | -0.164 | -0.137 | -0.124 | -0.199 | -0.11 |
| 5.444 | 0.204 | 0.156 | 0.034 | -0.139 | -0.300 | -0.424 | -0.379 | -0.208 | -0.150 | -0.124 | -0.124 | -0.160 | -0.11 |
| 5.944 | 0.205 | 0.157 | 0.036 | -0.130 | -0.300 | -C.424 | -0.366 | -0.179 | -0.148 | -0.124 | -0.124 | -0.146 | -C.10 |
| 6.444 | 0.204 | 0.162 | 0.036 | -0.125 | -0.295 | -0.411 | -0.357 | -0.177 | -0.142 | -0.124 | -C.120 | -0.133 | -0.00 |
| 6.944 | 0.205 | 0.155 | 0.039 | -0.125 | -0.291 | -0.402 | -0.352 | -0.169 | -0.137 | -0.120 | -0.120 | -0.133 | -0.0 |
| 7.444 | C.205 | 0.166 | 0.039 | -0.125 | -0.291 | -0.402 | -0.339 | -0.159 | -0.129 | -0.115 | -0.124 | -0.133 | -0.07 |
| 7.944 | 0.207 | 0.168 | 0.044 | -0.125 | -C.263 | -0.380 | -0.335 | -0.171 | -0:124 | -0.115 | -0.133 | -0.138 | -0.0 |
| 8.444 | 0.203 | 0.166 | 0.041 | -0.121 | -0.291 | -0.375 | -0.335 | -0.151 | -0.120 | -0.115 | -0.120 | -0.138 | -0.08 |
| 8.944 | 0.201 | 0.162 | 0.042 | -0.126 | -0.287 | -0.367 | -0.331 | -0-142 | -0.115 | -0.111 | -0.124 | -0.133 | -0.0 |
| 9.444 | 0.197 | 0.160 | 0.038 | -0.121 | -0.287 | -0.371 | -0.326 | -0.142 | -0.115 | -0.120 | -C.133 | -0.142 | -0.10 |
| 9.244 | 0.201 | 0.162 | 0.043 | -0.116 | -0.282 | -0.358 | -0.313 | -0.129 | -0.107 | -0.115 | -0.124 | -0.120 | -0.0 |
| 10.444 | 0.206 | 0.163 | 0.053 | -0.110 | -0.269 | -0.349 | -0.299 | -0.118 | -0.100 | -0.111 | 2.254 | -0.109 | -0.0 |
| 10.944 | 0.205 | 0.165 | 0.048 | -0.112 | -0.255 | -0.338 | -0.284 | -0.107 | -0.097 | -0.109 | -0.120 | -0.109 | -0.10 |
| 11.444 | 0.202 | 0.160 | 0.047 | -0.105 | -0.262 | -0.335 | -0.276 | -0.103 | -0.100 | -0.111 | -0.122 | -0.116 | -0.1 |
| 11.744 | 0.204 | 0.167 | 0.051 | -0.103 | -0.251 | -0.322 | -0.251 | -0.091 | -0.093 | -0.104 | -0.120 | -0.111 | -C-1 |
| 12.444 | 0.202 | 0.160 | 0.050 | -0-034 | -0.247 | -0.320 | -0.234 | -0.037 | -0.073 | -0.102 | -0.118 | -0.109 | -C.10 |
| 12.944 | 0.207 | 0.164 | 0.053 | -0.096 | -0.233 | -0.308 | -0.209 | -0.0/9 | -0.091 | -0.104 | -0.113 | -0.105 | -0.10 |
| 13.444 | 0.204 | 0.157 | 0.047 | -0.094 | -0.231 | -0.304 | -0.191 | -0-078 | -0.091 | -0.106 | -0.109 | -0.107 | -0.1 |
| 13.944 | 0.197 | 0.153 | 0.044 | -0.C85 | -0.231 | -0.306 | -0.181 | -G.080 | -0.093 | -0.104 | -0.106 | -0.111 | -0.1 |
| 14.444 | 0.199 | 0.154 | 0.046 | -0.065 | -0.227 | -C.304 | -0.175 | -0.083 | -0.014 | -0.101 | -0.104 | -0.110 | -0.1 |
| 14.944 | 0.200 | 0.155 | 0.048 | -0.078 | -0.224 | -0.302 | -0.168 | -0.087 | -0.095 | -0.097 | -0.102 | -0.107 | -0.11 |
| 15.444 | 0.199 | 0.154 | 0.047 | -0.076 | -0.222 | -0.300 | -0.168 | -0.036 | -0.097 | -0.097 | -0.095 | -0.109 | -C.1 |
| 15.944 | 0.203 | 0.156 | 0.051 | -0.085 | -0.222 | -0.298 | -0.175 | -0.135 | -0.097 | -0.095 | -0.091 | -0.109 | -0.1 |
| 10.444 | 0.196 | 0.151 | 0.045 | -0.087 | -0.233 | -0.307 | -0.198 | -0.121 | -0.102 | -0.095 | -0.091 | -0.114 | -0.12 |
| 16.944 | 0.195 | 0.157 | 0.047 | -0.083 | -0.235 | -0.307 | -0.206 | -0.134 | -0.104 | -0.095 | -0.084 | -0.114 | -0.11 |
| 17.444 | 0.201 | 0.158 | 0.053 | -0.083 | -0.238 | -0.309 | -0.224 | -0.148 | -0.102 | -0.093 | -0.082 | -0.111 | -0.11 |
| 17.944 | 0.200 | 0.160 | 0.057 | -0.092 | -C.235 | -0.307 | -0.238 | -0.157 | -0.102 | -0.091 | -0.084 | -0.109 | -0.1 |
| 18.444 | 2.198 | 0.159 | 0.056 | -0.092 | -0.244 | -0.315 | -0.263 | -0.168 | -0.100 | -0.091 | -0.084 | -0.109 | -0.10 |
| 18.944 | 0.201 | 0.163 | 0.060 | -0.092 | -0.242 | -0.311 | -0.278 | -C.175 | -0.095 | -0.088 | -0.075 | -0.102 | -0.10 |
| 19.444 | 0.203 | 0.166 | 0.067 | -0.094 | -0.240 | -0.304 | -0.294 | -0.164 | -0.088 | -0.086 | -0.070 | -0.095 | -0.10 |
| 19.744 | 0.212 | 0.174 | 0.074 | -0.080 | -0.242 | -0.309 | -0.299 | -0.154 | -0.079 | -0.030 | -0.066 | -0.093 | -0.09 |
| 20.444 | 0.224 | 0.181 | 0.087 | -0.076 | -0.229 | -0.293 | -0.294 | -0.132 | -0.006 | -0.056 | -0.061 | -0.068 | -0.08 |
| 20.044 | 0.222 | | 0.091 | -0.060 | -0.208 | -0.277 | -0.274 | -C-135 | -0.052 | -0.055 | -0.050 | -0.055 | |
| | | 0.186 | | | | | | | | | | | -0.06 |
| 31.444 | 0.216 | 0.192 | 0.102 | 0.033 | -0.193 | -0.225 | -0.233 | -0.052 | -0.025 | -0.028 | -0.323 | -0.019 | 9.24 |

Table 1.33 Experimental pressure coefficients c_p for $\alpha = 25^{\circ}$, $M_{\infty} = 0.9$ and $Re_D = 5.9 \cdot 10^5$

| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
|-------------|-------|--------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| x/0 | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 160 |
| 0.251 | 0.470 | 0.360 | 0.285 | 0.144 | 0.423 | 0.181 | -0.210 | -0.194 | -0.267 | -0.259 | -0.290 | -0.178 | -0.15 |
| 0.482 | 0.834 | 0.785 | 0.654 | 0.463 | 0.215 | -C.014 | -0.241 | -0.391 | -0.479 | -0.481 | -0:450 | -0.412 | -0.39 |
| 0.731 | 0.511 | 0.565 | 0.438 | 0.256 | 0.002 | -0.229 | -0.429 | -C.575 | -0.655 | -0.642 | -0.600 | -0.527 | -0.50 |
| 0.980 | 0.371 | 0.329 | 0.208 | 0.029 | -0.202 | -0.421 | -0.625 | -0.757 | -0.032 | -0.792 | -0.742 | -0.654 | -0.63 |
| 1.233 | 0.170 | 0.127 | 0.013 | -0.164 | -0.375 | -0.591 | -0.791 | -0.915 | -0.966 | -0.911 | -0.831 | -0.746 | -0.71 |
| 1.500 | 0.010 | -0.033 | -0.149 | -0.319 | -0.521 | -0.726 | -0.863 | -0.792 | -0.950 | -0.813 | -0.640 | -0.313 | -0.32 |
| 1.944 | 0.108 | 0.066 | -0.258 | -0.242 | -0.471 | -0.653 | -0.950 | -0.461 | -0.420 | -0.455 | -0.113 | 0.052 | 0.00 |
| 2.444 | 0.155 | 0.115 | -0.005 | -0.190 | -0.467 | -0.625 | -0.328 | -0.318 | -0.298 | -0.263 | -0.198 | 0.017 | 0.05 |
| 2.944 | 0.175 | 0.132 | 0.021 | -0.157 | -C.352 | -0.532 | -0.340 | -0.233 | -0.217 | -0.260 | -0.286 | -0.176 | -0.14 |
| 3.444 | 0.195 | 0.255 | 0.025 | -0.145 | -C.326 | -0.467 | -0.363 | -0.202 | -0.213 | -0.206 | -0.279 | -0.194 | -C.11 |
| 3.744 | 0.203 | 0.155 | 0.034 | -0.134 | -0.310 | -0.436 | -0.363 | -0.187 | -0.194 | -0.202 | -0.240 | -0-194 | -0.11 |
| 4.444 | 0.205 | 0.158 | 0.035 | -0.134 | -0.314 | -0.423 | -0.313 | -0.148 | -0.190 | -0.198 | -0.233 | -0.228 | -0.14 |
| 4.944 | 0.207 | 0.158 | 0.940 | -0.126 | -0.306 | -0.416 | -0.290 | -0-164 | -0.190 | -0.194 | -C.217 | -0.220 | -0.13 |
| 5.444 | 0.210 | 0.159 | 0.041 | -0.122 | -0.303 | -0.412 | -0.263 | -0.148 | -0.186 | -0.182 | -0.206 | -0.205 | -C.11 |
| 5.944 | 0.209 | 0.165 | 0.041 | -0.126 | -0.299 | -0.407 | -0.240 | -0.140 | -0.186 | -0.175 | -0.198 | -0.197 | -0.10 |
| 6.444 | 0.209 | 0.166 | 0.041 | -0.122 | -0.295 | -0.393 | -0.217 | -0.137 | -0.182 | -0.175 | -0.198 | -0.193 | -0.10 |
| 6.944 | 0.210 | 0.170 | 0.044 | -0.113 | -0.295 | -0.389 | -0.206 | -0.125 | -0.179 | -0.171 | -0.198 | -0.209 | -0.11 |
| 7.444 | 0.210 | 0.170 | 0.044 | -0.118 | -0.295 | -0.389 | -0.186 | -0.125 | -0.171 | -0.167 | -0.202 | -0.205 | -0.11 |
| 7.944 | 0.210 | 0.172 | 0.048 | -0.107 | -0.280 | -0.359 | -C.186 | -0.114 | -0.163 | -0.163 | -0.194 | -0.197 | -0.11 |
| 8.444 | 0.235 | 0.168 | 0.042 | -0.107 | -0.287 | -0.366 | -0.194 | -0.114 | -0.155 | -0.155 | -0.171 | -0.197 | -0.12 |
| 8.344 | 0.204 | 0.165 | 0.044 | -0.107 | -0.283 | -0.355 | -C.206 | -0.110 | -0.144 | -0.144 | -0.160 | -0.174 | -0.17 |
| 9.444 | 0.202 | 0.161 | 0.039 | -0.114 | -0.279 | -0.356 | -0.225 | -0.110 | -0.133 | -0.140 | | -0.170 | |
| | | | | -0.099 | | -0.344 | | -0.110 | | | -0.148 | | -0.13 |
| 9.944 | 0.205 | 0.163 | 0.045 | | -0.272 | | -0.245 | | -0.113 | -0.125 | -0.133 | -0.147 | -0.12 |
| 10.444 | 0.207 | 0.166 | 0.054 | -0.099 | -0.256 | -0.332 | -0.271 | -0.108 | -0.102 | -0.109 | -0.118 | -0.127 | -0.12 |
| 10.944 | 0.207 | 0.170 | 0.053 | -0.093 | -C.248 | -0.317 | -0.301 | -0.108 | -0.096 | -0.106 | -0.108 | -0.127 | -0.12 |
| 11.444 | 0.203 | 0.163 | 0.050 | -0.097 | -0.244 | -0.320 | -0.340 | -0.114 | -0.092 | -0.106 | -0.111 | -0.129 | -0.13 |
| 11.944 | 0.205 | 0.165 | 0.055 | -0.001 | -0.231 | -0.312 | -0.358 | -0.110 | -0.084 | -0.100 | -0.114 | -0.123 | -0.1 |
| 12.444 | 0.203 | 0.164 | 0.053 | -0.091 | -0.227 | -0.312 | -0.376 | -0.112 | -0.088 | -0.100 | -0.120 | -0.123 | -0.1 |
| 12.944 | 0.209 | 0.169 | 0.056 | -0.085 | -0.215 | -0.307 | -0.383 | -0.114 | -0.099 | -0.104 | -0.126 | -0.122 | -0.1 |
| 13.444 | 0.204 | 0.164 | 0.053 | -0.093 | -C.215 | -0.304 | -0.387 | -0.114 | -0.102 | -0.112 | -0.132 | -0.127 | -0.13 |
| 13.944 | 0.198 | 0.158 | 0.048 | -0.095 | -0.221 | -0.312 | -0.379 | -0.116 | -0.116 | -0.122 | -0.146 | -0.133 | -0.1 |
| 14.444 | 0.199 | 0.160 | 0.051 | -0.091 | -0.223 | -0.316 | 0.005 | -0.118 | -6.131 | -0.132 | -0.155 | -0.139 | -0.1 |
| 14.944 | 0.200 | 0.162 | 0.054 | -0.087 | -0.225 | -0.320 | -0.329 | -0.120 | -0.145 | -0.141 | -0.165 | -0.137 | -0.1 |
| 15.444 | 0.197 | 0.162 | 0.053 | -0.087 | -0.227 | -0.319 | -0.297 | -0.120 | -0.159 | -0.153 | -0.179 | -0.137 | -0.1 |
| 15.944 | 0.202 | 0.165 | 0.056 | -0.087 | -0.235 | -0.321 | -0.274 | -0.118 | -0.169 | -0.165 | -0.185 | -0.139 | -0.13 |
| 16.444 | 0.196 | 0.159 | 0.049 | -0.095 | -0.251 | -0.327 | -0.256 | -0.118 | -0.179 | -0.175 | -0.191 | -0.145 | -0.13 |
| 16.944 | 0.197 | 0.159 | 0.049 | -0.097 | -0.251 | -0.323 | -0.237 | -0.110 | -0.183 | -C.175 | -0-187 | -0.145 | -0.12 |
| 17.444 | 0.204 | 0.166 | 0.055 | -0.093 | -0.257 | -0.321 | -0.227 | -0.104 | -0.175 | -0.171 | -0.175 | -0.145 | -0.12 |
| 17.944 | 0.202 | 0.167 | 0.058 | -0.091 | -0.253 | -0.311 | -0.217 | -0.098 | -0.165 | -0.163 | -0.163 | -0.143 | -0.12 |
| 18.444 | 0.201 | 0.165 | 0.056 | -0.097 | -0.261 | -0.311 | -0.225 | -0.000 | -0.149 | -0.151 | -0.146 | -0.143 | -0.1 |
| 18.944 | 0.206 | 0.179 | 0.062 | -0.089 | -0.251 | -0.297 | -0.224 | -0.034 | -0.131 | -0.137 | -0.116 | -0.135 | -0.11 |
| 19.444 | 0.208 | 0.177 | 0.068 | -0.081 | -0.245 | -0.281 | -0.234 | -0.074 | -0.112 | -0.120 | -0.096 | -0.123 | -0.10 |
| 19.944 | 0.220 | 0.184 | 0.074 | -0.067 | -0.243 | -0.284 | -0.246 | -0.055 | -0.090 | -0.098 | -0.082 | -0.101 | -0.0 |
| 20.444 | 0.234 | 0.198 | 0.091 | -0.047 | -0.221 | -0.256 | -0.248 | -0.051 | -0.062 | -0.072 | -0.067 | -0.080 | -0.0 |
| 22.244 | 0.233 | 0.202 | 0.096 | -0.043 | -0.191 | -C.235 | -0.235 | -0.033 | -0.037 | -2.044 | -0.047 | -0.058 | -0.0 |
| 21.444 | 0.232 | 0.201 | 0.109 | -0.013 | -0.168 | -0.187 | -0.205 | -0.003 | -0.001 | -0.005 | -0.009 | -C.011 | 0.20 |

Table 1.34 Experimental pressure coefficients c_p for α = 25 $^{\circ}$, M_{∞} = 0.95 and Re_D = 6.0 \cdot 10 5

| Coordinates | | | | | | Polar an | gle, Φ, | deg. | | | | | |
|-------------|-------|--------|--------|--------|---------|----------|---------|--------|--------|--------|--------|--------|-------|
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 150 |
| 0.251 | 0.466 | 0.345 | 0.270 | 0.128 | 0.469 | 0.238 | -0.158 | -0.125 | -0.201 | -0.198 | -0.147 | 0.002 | -C.CI |
| 0.482 | 0.857 | 0.821 | 0.695 | 0.510 | C.265 | 0.040 | -0.172 | -0.319 | -0.405 | -0.408 | -0.377 | -0.343 | -0.33 |
| 0.731 | 0.646 | 0.602 | 0.480 | 0.307 | 0.054 | -0.165 | -0.354 | -0.497 | -0.580 | -0.572 | -0.534 | -0.471 | -0.4 |
| 0.900 | 0.410 | 0.365 | 0.252 | 0.080 | -C.144 | -0.355 | -0.551 | -0.684 | -0.754 | -0.724 | -0.672 | -0.594 | -0.5 |
| 1.238 | 0.204 | 0.164 | 0.052 | -0.111 | -0.326 | -0.522 | -0.711 | -0.840 | -0.896 | -0.847 | -0.781 | -0.689 | -0.6 |
| 1.500 | 0.028 | -0.009 | -0.122 | -0.280 | -0.479 | -0.665 | -0.835 | -0.950 | -0.995 | -0.902 | -0.781 | -0.638 | -0.6 |
| 1.744 | 0.110 | 0.071 | -0.042 | -0.218 | -0.442 | -0.628 | -0.853 | -1.001 | -0.991 | -0.630 | -0.445 | -0.190 | -0.0 |
| 2.444 | 0.175 | 0.055 | -0.055 | -0.240 | -0.482 | -0.712 | -0.405 | -0.569 | -0.602 | -0.593 | -C.258 | 6.089 | 0.1 |
| 2.144 | 0.210 | 0.041 | -0.082 | -0.280 | -0.497 | -0.723 | -0.159 | -0.282 | -0.296 | -0.637 | -0-144 | 0.002 | -0.0 |
| 3.444 | 0.225 | 0.085 | -0.005 | -0.120 | -0.253 | -0.307 | -0.231 | -0.199 | -0.183 | -0.285 | -0.220 | -0.001 | 0.0 |
| 3.944 | 0.228 | 0.182 | 0.078 | -0.060 | -0.271 | -0.380 | -0.231 | -0.213 | -0.147 | -0.143 | -0.278 | -0.001 | 0.0 |
| 4.444 | 0.221 | 0.175 | 0.062 | -0.097 | -0.289 | -0.413 | -0.336 | -0.169 | -0.154 | -0.132 | -0.147 | -0.176 | -0.1 |
| 4.944 | 0.215 | 0.172 | 0.065 | -0.112 | -0.282 | -0.395 | -0.322 | -0.155 | -0.132 | -0.154 | -0.136 | -0.161 | -0.1 |
| 5.444 | 0.217 | 0.170 | 0.051 | -0.104 | -C.271 | -0.369 | -0.300 | -0.144 | -0.121 | -0.147 | -0-147 | -C-147 | -0.1 |
| 3.944 | 0.215 | 0.170 | 0.052 | -0.112 | -G. 271 | -0.387 | -0.293 | -0.144 | -0.118 | -0.136 | -0.140 | -0.143 | -C. |
| 6.444 | 0.213 | 0.174 | 0.050 | -0.104 | -0.260 | -0.387 | -0.282 | -0-140 | -0.114 | -0.129 | -0.129 | -0.132 | -0.1 |
| 6.944 | 0.214 | 0.176 | 0.052 | -0.101 | -0.260 | -0.362 | -0.271 | -0.133 | -0.114 | -0.121 | -0.122 | -0.121 | -0.1 |
| 7.444 | 0.214 | 0.176 | 0.052 | -0.101 | -0.260 | -0.362 | -0.256 | -0.133 | -0.103 | -0.114 | -0.118 | -0.110 | -0.1 |
| 7.944 | 0.215 | 0.178 | C.057 | -0.090 | -0.249 | -0.347 | -0.249 | -0.125 | -0.107 | -0.110 | -0.122 | -C.107 | -0.1 |
| 8.444 | 0.209 | 0.174 | 0.052 | -0.037 | -0.253 | -0.355 | -0.245 | -0.176 | -0.103 | -0.110 | -0.118 | -0.110 | -0.1 |
| 8.944 | 0.207 | 0.171 | 0.056 | -0.097 | -0.253 | -C.351 | -0.242 | -0.118 | -0.103 | -0.110 | -0.114 | -0.110 | -0.1 |
| 9.444 | 0.205 | 0.165 | 0.052 | -0.100 | -0.257 | -0.355 | -0.246 | -0.122 | -0.107 | -0.114 | -0.114 | -0.114 | -0-1 |
| 9.944 | 0.206 | 0.165 | 0.056 | -0.093 | -0.253 | -0.355 | -0.235 | -0.122 | -0.107 | -0-114 | -0.111 | -0.110 | -0.1 |
| 19.444 | 0.209 | 0.166 | 0.059 | -0.093 | -0.241 | -0.342 | -0.225 | -0.115 | -0.105 | -0.109 | -0.137 | -0.104 | -0.1 |
| 10.944 | 0.209 | 0.170 | 0.059 | -0.091 | -0.241 | -0.333 | -0.214 | -0.113 | -0.107 | -0.111 | -0.109 | -0.107 | -0.1 |
| 11.444 | 0.203 | 0.163 | 0.054 | -0.697 | -0.244 | -0.340 | -0-214 | -0.115 | -0.115 | -0.115 | -0.113 | -0.115 | -0.1 |
| 11.944 | 0.206 | 0.165 | 0.057 | -0.091 | -0.235 | -0.33A | -0.205 | -0.111 | -0.115 | -0.115 | -0.109 | -0.111 | -0.1 |
| 12.444 | 0.204 | 0.163 | 0.055 | -0.093 | -0.243 | -0.348 | -0.203 | -0.111 | -0.115 | -0.114 | -0.111 | -0.113 | -0.1 |
| 12.944 | 0.210 | 0.170 | 0.059 | -0.087 | -0.233 | -0.342 | -0.197 | -0.111 | -0.115 | -0.114 | -0-109 | -0.107 | -0.1 |
| 13.444 | 0.296 | 0.163 | 0.053 | -0.093 | -0.235 | -0.344 | -0.196 | -0.111 | -0.113 | -0.115 | -0.109 | -0.111 | -0.1 |
| 13.744 | 0.200 | 0.159 | 0.047 | -0.099 | -0.243 | -0.346 | -0.203 | -0.111 | -0.109 | -0.114 | -0.109 | -C.116 | -0.1 |
| 14.444 | 0.202 | 0.161 | C.050 | -0.093 | -0.243 | -0.334 | -0.200 | -0.111 | -0.112 | -0.113 | -0.108 | -C.115 | -C.1 |
| 14.944 | 0.205 | 0.162 | 0.052 | -0.087 | -0.244 | -0.323 | -0.205 | -0.111 | -0.115 | -0.111 | -0-107 | -0.115 | -0.1 |
| 15.444 | 0.200 | 0.163 | 0.051 | -0.089 | -0.243 | -0.327 | -0.205 | -0.111 | -0.115 | -0.109 | -0-106 | -0.115 | -0.1 |
| 15.944 | 0.206 | 0.166 | 0.055 | -0.086 | -0.239 | -0.329 | -0.205 | -0.110 | -0.111 | -0.105 | -0.102 | -0.115 | -0.1 |
| 16.444 | 0.198 | 0.160 | 0.048 | -0.093 | -0.244 | -0.340 | -0.212 | -0.108 | -0.107 | -0.105 | -0.102 | -0.116 | -0.1 |
| 16.944 | 0.198 | 0.159 | 0.050 | -0.091 | -0.241 | -C.331 | -0.216 | -0.106 | -0.103 | -0.101 | -0.100 | -0.113 | -0.0 |
| 17.444 | 0.205 | 0.166 | 0.057 | -0.086 | -C.235 | -0.308 | -0.214 | -0.102 | -0.098 | -0.096 | -0.094 | -0.104 | -0.0 |
| 17.944 | 0.203 | 0.169 | 0.060 | -0.080 | -0.228 | -0.304 | -0.211 | -0.096 | -0.092 | -0.090 | -0.092 | -0.105 | -0.0 |
| 18.444 | 0.203 | 0.167 | 0.058 | -0.082 | -0.228 | -C.284 | -0.203 | -0.091 | -0.087 | -0.085 | -0.089 | -0.099 | -0.0 |
| 18.944 | 0.208 | 0.173 | 0.068 | -0.069 | -C.213 | -0.278 | -0.194 | 183.0- | -0.677 | -0.075 | -0.079 | -0.088 | -0.0 |
| 19.444 | 0.212 | 0.177 | 0.074 | -0.059 | -0.198 | -0.244 | -0.177 | -0.068 | -0.068 | -0.068 | -0.066 | -0.077 | -0.0 |
| 19.944 | 0.225 | 0.188 | 0.083 | -0.061 | -0.203 | -0.254 | -0.167 | -0.055 | -0.055 | -0.053 | -0.051 | -0.058 | -0.0 |
| 25.444 | 0.241 | 0.202 | 0.102 | -0.035 | -0.179 | -0.235 | -0.151 | -0.036 | -0.036 | -0.036 | -0.036 | -0.040 | -0.0 |
| 20.744 | 0.243 | 0.204 | 0.111 | -0.023 | -0.151 | -0.205 | -0.115 | -0.012 | -0.015 | -0.012 | -0.017 | -0.017 | -0.0 |
| 21.444 | 0.246 | 0.211 | 0.122 | -0.002 | -0.128 | -0.156 | -0.064 | 0.026 | 0.022 | 0.026 | 0.026 | 0.028 | 0.2 |

Table 1.35 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_{\infty} = 1.0$ and $Re_D = 6.1 \cdot 10^5$

| Coordinates | | | | | | Polar a | ingle, φ, | deg. | | | | | |
|-------------|-------|-------|--------|--------|--------|---------|-----------|--------|--------|--------|--------|--------|--------|
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 100 |
| 0.251 | 0.498 | 0.375 | 0.317 | 0.175 | 0.516 | 0.297 | -0.231 | -0.060 | -0.133 | -0.130 | -0.268 | -0.112 | -0.099 |
| 0.482 | 0.904 | 0.361 | 0.740 | 0.560 | 0.316 | 0.105 | -0.106 | -0.252 | -0.331 | -0.331 | -0.307 | -0.272 | -0.262 |
| 0.731 | 0.691 | 0.648 | 0.531 | 0.361 | 0.110 | -0.092 | -0.284 | -0.422 | -0.501 | -0.494 | -0.456 | -0.377 | -0.37 |
| 0.980 | 0.458 | 0.419 | 0.308 | 0.142 | -0.005 | -0.280 | -0.472 | -0.600 | -0.671 | -0.640 | -0.596 | -0.519 | -0.49 |
| 1.236 | 0.255 | 0.219 | 0.114 | -0.047 | -0.259 | -0.444 | -0.626 | -0.754 | -0.813 | -0.761 | -0.704 | -0.612 | -0.59 |
| 1.500 | 0.074 | 0.039 | -0.060 | -0.212 | -0.413 | -0.581 | -0.748 | -0.850 | -0.907 | -0.818 | -0.722 | -0.574 | -0.55 |
| 1.944 | 0.155 | 0.119 | 0.016 | -0.159 | -0.385 | -0.573 | -0.769 | -0.910 | -0.962 | -0.665 | -0.478 | -0.258 | -0.18 |
| 2.444 | 0.140 | 0.102 | -0.015 | -0.185 | -0.427 | -0.636 | -0.842 | -0.924 | -0.691 | -0.731 | -0.645 | -0.176 | -0.07 |
| 2.944 | 0.112 | 0.070 | -0.040 | -0.226 | -0.462 | -0.678 | -0.235 | -0.548 | -0.553 | -0.874 | -0.269 | -0.112 | -0.09 |
| 3.444 | 0.100 | 0.054 | -C.070 | -0.255 | -0.489 | -0.709 | -0.479 | -0.353 | -0.439 | -0.703 | -0.485 | -0.109 | -0.06 |
| 3.944 | 0.097 | 0.047 | -0.076 | -0.267 | -0.514 | -0.692 | -0.477 | -0.234 | -0.303 | -0.311 | -0.489 | -0.109 | -0.06 |
| 4.444 | 0.087 | 0.037 | -0.092 | -0.289 | -0.185 | -0.357 | -0.221 | -0.217 | -0.161 | -0.161 | -0.270 | -0.130 | -0.09 |
| 4.944 | 0.083 | 0.030 | -0.092 | -0.296 | -C.207 | -0.298 | -0.116 | -0.092 | -0.089 | -0.109 | -0.162 | -0.154 | -0.11 |
| 5.444 | 0.180 | 0.123 | 0.002 | -0.159 | -0.207 | -0.312 | -0-158 | -0.092 | -0.077 | -0.095 | -0.099 | -0.151 | -0.11 |
| 5.744 | 0.251 | 0.206 | 0.041 | -0.173 | -0.235 | -0.224 | -0.228 | -0.092 | -0.102 | -0.081 | -0.678 | -0.105 | -0.10 |
| 6.444 | 0.255 | 0.216 | 0.108 | -0.026 | -C.235 | -0.315 | -0.224 | -C.C95 | -0.105 | -0.985 | -0.078 | -0.081 | -0.09 |
| 6.944 | 0.253 | 0.223 | 0.114 | -0.026 | -0.238 | -0.322 | -0.270 | -0.102 | -0.102 | -0.105 | -01092 | -0.084 | -0.08 |
| 7.444 | 0.253 | 0.223 | 0.114 | -0.026 | -0.238 | -0.322 | -0.242 | -0.1C2 | -0.102 | -0.105 | -0.102 | -0.091 | -0.07 |
| 7.944 | 0.240 | 0.217 | 0.103 | -0.043 | -0.220 | -0.336 | -0.231 | -0.095 | -0.105 | -0.105 | -0.109 | -0.102 | -0.08 |
| 8.444 | 0.224 | 0.195 | 0.089 | -0.061 | -0.252 | -0.329 | -0.231 | -0.075 | -0.105 | -0.109 | -0.116 | -0.109 | -0.09 |
| 8.944 | 0.218 | 0.184 | 0.079 | -C.071 | -0.242 | -0.336 | -0.214 | -C.106 | -0.105 | -9.112 | -0.116 | -0.102 | -0.10 |
| 9.444 | 0.211 | 0.173 | 0.067 | -0.092 | -0.245 | -0.336 | -0.218 | -0.109 | -0.105 | -0.116 | -0.112 | -0.109 | -0.11 |
| 9.944 | 0.210 | 0.170 | 0.064 | -0.089 | -C.238 | -0.325 | -0.204 | -0.109 | -0.105 | -0.112 | -0.105 | -0.095 | -0.10 |
| 10.444 | 0.212 | 0.170 | 0.062 | -0.094 | -0.239 | -0.316 | -0.201 | -0.108 | -0.104 | -0.107 | -0-107 | -0.099 | -0.09 |
| 10.744 | 0.213 | 0.173 | 0.059 | -0.092 | -0.234 | -0.320 | -0.198 | -0.108 | -0.107 | -0.111 | -0.111 | -0.104 | -0.09 |
| 11.444 | 0.208 | 0.157 | 0.054 | -0.098 | -0.241 | -0.316 | -0.209 | -0.113 | -0.113 | -0.116 | -0.116 | -0.111 | -C.10 |
| 11.944 | 0.210 | 0.170 | 0.057 | -0.092 | -0.234 | -0.318 | -0.207 | -0.113 | -C.114 | -0.116 | -0.113 | -0.109 | -C.10 |
| 12.444 | 0.205 | 0.168 | 0.057 | -0.094 | -C.248 | -0.326 | -0.203 | -0.113 | -0.113 | -0.116 | -0-113 | -0.109 | -0.10 |
| 12.944 | 0.210 | 0.173 | 0.067 | -0.085 | -0.232 | -0.320 | -0.194 | -0.110 | -0.109 | -0.113 | -0.108 | -0.104 | -0.10 |
| 13.444 | 0.203 | 0.164 | 0.062 | -0.065 | -0.243 | -0.322 | -0.151 | -0.119 | -0.106 | -0.113 | -0.108 | -0.106 | -0.10 |
| 13.944 | 0.198 | 0.159 | 0.056 | -0.091 | -0.241 | -0.322 | -C.189 | -0.110 | -0.107 | -0.111 | -0-110 | -0.111 | -0.10 |
| 14.444 | 0.201 | 0.162 | 0.057 | -0.089 | -0.242 | -0.319 | -0.170 | -0.110 | -0.108 | -0.112 | -0-110 | -0.110 | -0.11 |
| 14.944 | 0.204 | 0.165 | 0.059 | -0.087 | -0.243 | -0.316 | -0.191 | -0.111 | -0.109 | -0.113 | -0.110 | -0.111 | -0.10 |
| 15.444 | 0.200 | 0.163 | 0.057 | -0.087 | -0.243 | -0.322 | -0.194 | -0.113 | -0.109 | -0.113 | -0.110 | -0.113 | -0.10 |
| 15.944 | 0.208 | 0.165 | 0.057 | -0.087 | -0.241 | -0.324 | -0.196 | -C.117 | -0.111 | -0.111 | -0.112 | -0.113 | -0.10 |
| 16.444 | 0.202 | 0.162 | 0.048 | -0.094 | -0.252 | -0.331 | -0.203 | -0.119 | -0.113 | -0.115 | -0.113 | -0.116 | -C.11 |
| 16.944 | 0.197 | 0.161 | 0.045 | -0.098 | -0.236 | -0.324 | -0.209 | -0.117 | -0.111 | -0.111 | -0.112 | -0.115 | -0.10 |
| 17.444 | 0.199 | 0.163 | 0.055 | -0.092 | -0.237 | -0.318 | -0.209 | -0.113 | -0.107 | -0.108 | -0.108 | -0.111 | -0.10 |
| 17.944 | 0.194 | 0.159 | 0.055 | -0.091 | -0.232 | -0.313 | -0.202 | -0.108 | -0.100 | -0.100 | -0.099 | -0.104 | -0.09 |
| 18.444 | 0.190 | 0.154 | 0.047 | -0.100 | -0.230 | -0.304 | -0.194 | -0.095 | -0.093 | -0.091 | -0.092 | -0.1cc | -0.09 |
| 18.944 | 0.197 | 0.159 | 0.054 | -0.091 | -0.223 | -0.300 | -0.175 | -0.079 | -0.089 | -2.286 | -0.083 | -0.091 | -0.08 |
| 19.444 | 0.205 | 0.166 | 0.064 | -0.078 | -0.207 | -0.297 | -0.194 | -0.079 | -0.072 | -0.074 | -0.068 | -0.075 | -0.06 |
| 19.944 | 0.225 | 0.186 | 0.079 | -0.069 | -0.211 | -0.266 | -0.153 | -0.050 | -0.054 | -0.049 | -0.045 | -0.054 | -0.04 |
| 20.444 | 0.242 | 0.206 | 0.106 | -0.036 | -C.185 | -0.226 | -0.126 | -0.027 | -0.027 | -0.029 | -0.027 | -0.031 | -0.02 |
| 20.944 | 0.247 | 0.215 | 0.118 | -0.015 | -0.140 | -0.196 | -0.097 | 0.603 | 0.003 | 0.002 | -0.002 | -0.002 | 0.01 |
| 21.444 | 0.251 | 0.221 | 0.129 | 0.011 | -0.113 | -0.122 | -0.040 | 0.046 | 0.048 | 0.047 | 0.044 | 0.049 | 0.30 |

Table 1.36 Experimental pressure coefficients c_p for α = 25°, M_{∞} = 1.1 and Re_D = 6.2 · 10⁵

| 0.791 0.798 0.791 0.798 0.791 0.607 0.449 0.245 0.025 0.147 0.218 0.394 0.392 0.315 0.263 1.008 0.590 0.594 0.500 0.393 0.239 0.051 0.051 0.025 0.049 0.056 0.646 0.6513 0.498 0.445 0.376 0.390 0.594 0.500 0.393 0.239 0.051 0.0147 0.0323 0.446 0.513 0.488 0.445 0.376 0.397 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.129 0.031 0.019 0.057 0.057 0.057 0.058 0.0461 0.057 0.057 0.057 0.058 0.0461 0.057 0.057 0.058 0.0461 0.057 0.058 0.0461 0.057 0.058 0.0461 0.057 0.058 0.058 0.059 0.055 0.059 0.0459 0.050 0.059 0.059 0.051 0.059 0.059 0.051 0.059 0.059 0.051 0.059 0.059 0.051 0.059 0.059 0.051 0.059 0.0 | | | | | | | | | | | | | | |
|--|-------------|-------|-------|-------|--------|--------|---------|----------|--------|--------|--------|--------|--------|------|
| 0.251 | Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
| 0.781 0.786 0.792 0.810 0.640 0.433 0.214 0.019 -0.118 -0.192 -0.199 -0.172 -0.144 0.781 0.786 0.781 0.786 0.781 0.786 0.787 0.888 0.781 0.888 0.781 0.888 0.887 0.888 0 | X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 100 |
| 0.781 0.798 0.792 0.810 0.640 0.433 0.214 0.019 -0.118 -0.192 -0.199 -0.172 -0.144 0.791 0.758 0.752 0.751 0.758 0.752 0.751 0.758 0.752 0.751 0.758 0.759 0.751 0.759 0 | 0.251 | 0.560 | 0.469 | 0.414 | 0.280 | 0.009 | C-400 | -0-128 | 100.0 | -0.037 | -0.007 | 0.025 | -0.014 | 0.0 |
| 0.751 | | | | | | | | | -0.118 | -0.192 | -0.199 | | -G.14. | -0.1 |
| 0.390 | | | | | 0.449 | | | | -C.281 | -0.354 | -0.352 | -0.315 | -0.263 | -0.2 |
| 1.539 | | | | | | | | | | -0.513 | -0.488 | -0.445 | -0.374 | -0.3 |
| 1.500 | | | | | | | | | | | -0.602 | | -0.46: | -0.4 |
| 2.444 0.225 0.195 0.095 0.005 0.005 0.050 0.050 0.0779 0.574 0.0618 0.373 0.102 0.102 0.104 0.198 0.161 0.056 0.0109 0.0299 0.521 0.500 0.0450 0.0459 0.732 0.0441 0.0027 0.344 0.185 0.150 0.150 0.037 0.125 0.0325 0.0550 0.0404 0.0326 0.0357 0.579 0.0441 0.002 0.027 0.02 | | | | | | | -0.430 | | | -0.730 | -0.654 | -0.591 | -0.435 | -0.4 |
| 2.944 | 1.944 | | | | | | | | | | -0.553 | | -0.182 | -0.1 |
| 2.944 | | | | | | | | | | | | | -0.108 | -0.0 |
| \$.444 | | | | | | | | | -0.450 | | -0.732 | -0.441 | -0.017 | 0.0 |
| 3.944 | 3.444 | | | | | | | | | | | | -0.062 | -C.C |
| 4.944 0.164 0.120 0.002 -0.181 -0.384 -0.329 -0.274 -0.225 -0.250 -0.215 -0.273 -0.262 -1.494 0.164 0.120 0.002 -0.181 -0.384 -0.329 -0.274 -0.225 -0.129 -0.205 -0.261 -1.514 -1.515 0.120 -0.014 -0.184 -0.225 -0.420 -0.313 -0.226 -0.182 -0.189 -0.192 -0.211 -1.515 0.120 -0.014 -0.184 -0.225 -0.420 -0.313 -0.226 -0.189 -0.192 -0.211 -1.515 0.037 -0.119 -0.299 -0.551 -0.319 -0.200 -0.186 -0.166 -0.173 -0.162 -0.185 -0.160 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.167 -0.160 -0.167 -0.16 | | | | | | | | | | | | | -0.062 | -0.0 |
| 5.444 | | | | | | | | | | | | | | -0.1 |
| 5.444 0.201 0.168 0.047 -0.103 -0.229 -0.429 -0.316 -0.226 -0.162 -0.169 -0.192 -0.211 -0.574 0.201 0.168 0.047 -0.103 -0.229 -0.479 -0.316 -0.216 -0.106 -0.173 -0.163 -0.192 -0.164 0.197 0.157 0.037 -0.119 -0.249 -0.551 -0.319 -0.200 -0.185 -5.189 -0.163 -0.160 -0.166 -0.174 0.154 0.033 -0.122 -0.285 -0.485 -0.397 -0.164 -0.176 -0.160 -0.160 -0.137 -0.177 -0.164 0.194 0.154 0.033 -0.122 -0.285 -0.485 -0.257 -0.164 -0.150 -0.160 -0.167 -0.137 -0.177 -0. | 4.944 | | | | | | | | | | | | | -0.2 |
| 5.744 | | | | | | | | | | | | | | -0.2 |
| 6.444 0.194 0.154 0.033 -0.122 -0.295 -0.485 -0.397 -0.164 -0.176 -0.160 -0.163 -0.167 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.167 -0.169 -0.169 -0.169 -0.167 -0.169 | | | | | | | | | | | | | | -0.2 |
| 6.444 0.194 0.194 0.033 -0.122 -0.295 -0.485 -0.397 -0.164 -0.176 -0.160 -0.167 -0.137 -17.944 0.194 0.195 0.033 -0.122 -0.295 -0.485 -0.245 -0.184 -0.150 -0.160 -0.147 -0.137 -17.944 0.190 0.147 0.037 -0.119 -0.305 -0.384 -0.186 -0.121 -0.150 -0.164 -0.166 -0.153 -0.164 0.194 0.194 0.195 0.049 -0.166 -0.272 -0.394 -0.225 -0.160 -0.167 -0.163 -0.166 -0.166 -0.183 -0.164 0.184 0.150 0.049 -0.160 -0.272 -0.394 -0.225 -0.150 -0.160 -0.153 -0.166 -0.165 -0.169 -0.164 0.184 0.150 0.043 -0.103 -0.299 -0.394 -0.225 -0.157 -0.157 -0.160 -0.157 -0.166 -0.165 -0.164 0.184 0.184 0.150 0.053 -0.099 -0.299 -0.394 -0.183 -0.125 -0.124 -0.124 -0.125 -0.111 -0.107 -0.164 0.191 0.164 0.055 -0.096 -0.248 -0.333 -0.189 -0.117 -0.109 -0.114 -0.105 -0.037 -110.944 0.191 0.164 0.055 -0.096 -0.248 -0.333 -0.194 -0.117 -0.109 -0.114 -0.105 -0.037 -1114 -0.110 0.164 0.055 -0.096 -0.248 -0.330 -0.194 -0.111 -0.115 -0.124 -0.125 -0.132 -0.114 -0.125 -0.124 -0.124 -0.125 -0.134 -0.134 -0.134 0.145 0.038 -0.111 -0.286 -0.340 -0.194 -0.111 -0.115 -0.124 -0.132 -0.114 -0.125 -0.124 -0.125 -0.124 -0.124 -0.125 -0.125 -0.124 -0.125 -0.12 | | | | | | | | | | | | | | -0.1 |
| 7.444 | | | | | | | | | | | | | | -0.1 |
| 7.944 | 7.444 | | | | | | | | | | | | | -0.1 |
| 8.944 0.197 0.158 0.049 -0.106 -0.272 -0.394 -0.225 -0.109 -0.121 -0.163 -0.166 -0.166 -0.167 -0.169 0.197 0.155 0.049 -0.103 -0.249 -0.394 -0.225 -0.160 -0.167 -0.163 -0.166 -0.163 -0.167 0.167 0.167 0.063 -0.008 -0.272 -0.394 -0.225 -0.157 -0.140 -0.131 -0.137 -0.111 -0.107 -0.167 0.168 0.063 -0.0081 -0.249 -0.394 -0.225 -0.157 -0.140 -0.131 -0.137 -0.111 -0.167 0.167 0.065 -0.081 -0.249 -0.394 -0.183 -0.125 -0.124 -0.124 -0.103 -0.111 -0.151 -0.124 -0.105 -0.011 -0.167 0.167 0.065 -0.081 -0.238 -0.338 -0.189 -0.117 -0.109 -0.114 -0.105 -0.087 -0.087 -0.161 -0.164 0.055 -0.096 -0.248 -0.333 -0.173 -0.114 -0.110 -0.121 -0.132 -0.131 -0.134 -0.114 -0.105 -0.121 -0.132 -0.114 -0.105 -0.087 -0.087 -0.161 -0.164 0.055 -0.096 -0.248 -0.333 -0.173 -0.114 -0.110 -0.121 -0.132 -0.114 -0.132 -0.134 -0.114 -0.105 -0.121 -0.132 -0.114 -0.132 -0.134 -0.134 -0.163 0.149 0.044 -0.113 -0.266 -0.340 -0.194 -0.111 -0.115 -0.124 -0.130 -0.134 -0.134 -0.167 0.131 0.023 -0.132 -0.297 -0.285 -0.156 -0.101 -0.107 -0.155 -0.119 -0.125 -0.122 -0.122 -0.127 -0.027 -0 | 7.944 | | | | | | | | | | | | | -0.1 |
| 8.944 | | | | | | | | | | | | | | -0.1 |
| 9.444 0.167 0.162 0.063 -0.093 -0.294 -0.394 -0.183 -0.157 -0.140 -0.131 -0.137 -0.111 -1 10.444 0.197 0.162 0.063 -0.099 -0.299 -0.394 -0.189 -0.117 -0.109 -0.114 -0.105 -0.087 -1 10.444 0.191 0.164 0.055 -0.096 -0.248 -0.333 -0.189 -0.117 -0.109 -0.114 -0.105 -0.087 -1 11.444 0.183 0.145 0.085 -0.111 -0.266 -0.340 -0.194 -0.111 -0.115 -0.124 -0.132 -0.114 -1 11.444 0.183 0.149 0.044 -0.113 -0.255 -0.335 -0.161 -0.107 -0.155 -0.119 -0.125 -0.132 -0.114 -1 12.444 0.167 0.131 0.023 -0.132 -0.297 -0.265 -0.156 -0.101 -0.107 -0.115 -0.119 -0.125 -0.122 -1 12.444 0.167 0.131 0.023 -0.132 -0.297 -0.265 -0.156 -0.101 -0.104 -0.109 -0.117 -0.107 -1.107 -1 13.444 0.205 0.173 0.063 -0.098 -0.256 -0.315 -0.174 -0.109 -0.070 -0.082 -0.104 -0.077 -1 13.444 0.205 0.173 0.063 -0.098 -0.256 -0.315 -0.174 -0.109 -0.070 -0.082 -0.104 -0.077 -1 14.444 0.251 0.185 0.066 -0.096 -0.196 -0.257 -0.117 -0.051 -0.051 -0.060 -0.043 -0.075 -1 14.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.257 -0.117 -0.051 -0.051 -0.050 -0.061 -0.075 -1 15.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.277 -0.117 -0.075 -0.051 -0.050 -0.061 -0.075 -1 15.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.279 -0.117 -0.075 -0.051 -0.050 -0.061 -0.075 -1 15.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.279 -0.117 -0.075 -0.051 -0.050 -0.061 -0.075 -1 15.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.279 -0.117 -0.075 -0.075 -0.077 -0.078 -0.087 -0.077 -1 15.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.279 -0.117 -0.075 -0.077 -0.078 -0.087 -0.077 -1 15.444 0.251 0.211 0.103 -0.055 -0.066 -0.196 -0.279 -0.117 -0.075 -0.077 -0.070 -0.087 -0.077 -1 15.444 0.252 0.251 0.114 -0.065 -0.096 -0.290 -0.293 -0.113 -0.114 -0.098 -0.099 -0.097 -0.078 -0.087 -0.077 -0.078 -0.078 -0.077 -0.078 -0.077 -0.078 -0.077 -0.078 -0.077 -0.078 -0.077 -0.078 -0.077 -0.078 -0.078 -0.078 -0.077 -0.078 -0.077 -0.078 -0.078 -0.078 -0.077 -0.078 | 8.944 | | | | | | | | | | | | | -0.1 |
| 9.44 | | | | | | | | | | | | | | -C.1 |
| 10.444 | | | | | | | | | | | | | | -0.0 |
| 10.944 | | | | 0.066 | | | | | | | | | | -C.C |
| 11.444 | | | | | | | | | | | | | | -0.1 |
| 11.944 | | | | | | | | | | | | | | -0.1 |
| 12.444 | | | | | | | | | | | | | | -0.1 |
| 12.444 | | | | | | | | | | | | | | -0.1 |
| 13.444 | | | | | | | | | | | | | | -0.0 |
| 13.444 | | | | | | | | | | | | | | -c.o |
| 14,444 0.221 0.185 0.085 -0.066 -0.196 -0.257 -0.115 -0.051 -0.051 -0.060 -0.061 -0.075 -14,944 0.251 0.211 0.103 -0.052 -0.209 -0.229 -0.117 -0.075 -0.079 -0.079 -0.078 -0.087 -15,444 0.274 0.231 0.114 -0.031 -0.164 -0.288 -0.183 -0.101 -0.090 -0.099 -0.097 -0.077 -0.077 -0.155 -15,444 0.283 0.231 0.114 -0.031 -0.164 -0.184 -0.328 -0.183 -0.117 -0.109 -0.097 -0.097 -0.102 -16,444 0.231 0.196 0.097 -0.044 -0.194 -0.353 -0.233 -0.138 -0.125 -0.125 -0.126 -0.115 -0.112 -16,444 0.221 0.177 0.074 -0.066 -0.219 -0.376 -0.246 -0.136 -0.125 -0.124 -0.122 -0.114 -17,444 0.202 0.169 0.066 -0.078 -0.233 -0.365 -0.264 -0.136 -0.119 -0.124 -0.122 -0.114 -17,444 0.205 0.186 0.066 -0.078 -0.233 -0.335 -0.198 -0.126 -0.119 -0.124 -0.122 -0.112 -18,444 0.205 0.169 0.066 -0.083 -0.233 -0.335 -0.198 -0.126 -0.119 -0.121 -0.127 -0.135 -18,444 0.205 0.167 0.066 -0.083 -0.238 -0.335 -0.198 -0.126 -0.119 -0.121 -0.127 -0.135 -18,444 0.205 0.167 0.066 -0.083 -0.238 -0.335 -0.198 -0.126 -0.119 -0.121 -0.127 -0.137 -0.147 -19,444 0.110 0.156 0.057 -0.091 -0.256 -0.355 -0.216 -0.136 -0.137 -0.147 | | | | | | | | | | | | | | -0.0 |
| 14.944 | | | | | | | | | | | | | | -0.0 |
| 15,444 0.274 0.281 0.114 -0.031 -0.114 -0.288 -0.183 -0.101 -0.098 -0.099 -0.037 -0.007 -15.944 0.263 0.231 0.134 -0.002 -0.143 -0.328 -0.203 -0.123 -0.117 -0.109 -0.097 -0.102 -116.444 0.291 0.196 0.097 -0.044 -0.194 -0.353 -0.233 -0.138 -0.125 -0.126 -0.115 -0.112 -116.944 0.212 0.177 0.074 -0.066 -0.219 -0.378 -0.246 -0.138 -0.125 -0.126 -0.112 -0.112 -117.444 0.202 0.169 0.066 -0.078 -0.233 -0.365 -0.204 -0.109 -0.100 -0.107 -0.105 -0.107 -0.114 -0.112 -0.120 -118.944 0.203 0.169 0.066 -0.083 -0.238 -0.335 -0.198 -0.126 -0.119 -0.121 -0.127 -0.137 -0.137 -0.147 -119.444 0.203 0.177 0.056 -0.090 -0.256 -0.355 -0.216 -0.136 -0.137 -0.137 -0.137 -0.147 -119.444 0.171 0.156 0.057 -0.091 -0.256 -0.355 -0.216 -0.136 -0.137 -0.152 -0.152 -0.159 -119.944 0.164 0.134 0.031 -0.110 -0.270 -0.360 -0.231 -0.116 -0.117 -0.135 -0.137 -0.147 -0.124 -0.124 -0.124 -0.125 -0.135 -0.137 | | | | | | | | | | | | | | -0.0 |
| 16.444 | | | | | | | | | | | | | | -0.0 |
| 16,444 0.231 0.196 0.097 -0.044 -0.194 -0.353 -0.233 -0.138 -0.125 -0.126 -0.125 -0.112 -116,944 0.222 0.177 0.074 -0.066 -0.219 -0.376 -0.264 -0.136 -0.119 -0.124 -0.122 -0.117 -17,444 0.202 0.169 0.066 -0.078 -0.233 -0.365 -0.204 -0.109 -0.100 -0.107 -0.105 -0.107 -17,944 0.215 0.186 0.076 -0.069 -0.233 -0.365 -0.204 -0.119 -0.107 -0.114 -0.112 -0.120 -18,444 0.205 0.169 0.066 -0.083 -0.238 -0.238 -0.184 -0.112 -0.107 -0.114 -0.112 -0.120 -18,444 0.205 0.174 0.056 -0.083 -0.238 -0.235 -0.198 -0.126 -0.119 -0.121 -0.127 -0.135 -19,444 0.171 0.156 0.057 -0.091 -0.256 -0.355 -0.216 -0.136 -0.137 -0.137 -0.137 -0.147 -19,944 0.171 0.156 0.057 -0.091 -0.256 -0.355 -0.216 -0.136 -0.137 -0.135 -0.159 -0.1 | | | | | | | | | | | | | | -0.0 |
| 16,444 0.202 0.169 0.066 -0.078 -0.233 -0.365 -0.204 -0.109 -0.107 -0.124 -0.122 -0.114 -17.444 0.215 0.186 0.076 -0.089 -0.234 -0.305 -0.204 -0.109 -0.107 -0.117 -0.112 -0.107 -0.1107 -0.112 -0.120 -0.124 -0.122 -0.121 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.124 -0.120 -0.127 -0.135 -0.126 -0.136 -0.137 -0.127 -0.135 -0.137 -0.147 | | | | | | | | | | | | | | -0.1 |
| 17.444 0.202 0.169 0.066 -0.078 -0.233 -0.365 -0.204 -0.109 -0.107 -0.105 -0.107 -0.107 -0.107 -0.105 0.186 0.076 -0.069 -0.234 -0.306 -0.164 -0.112 -0.107 -0.114 -0.112 -0.120 -0.121 | | | | | | | | | | | | | | -0.1 |
| 17.944 | | | | | | | | | | | | | | -0.0 |
| 18.444 | | | | | | | | | | | | | | -0.0 |
| 18,944 0.200 0.179 0.056 -0.090 -0.256 -0.355 -0.216 -0.136 -0.137 -0.137 -0.137 -0.147 -1 19.444 0.171 0.156 0.057 -0.091 -0.256 -0.352 -0.212 -0.149 -0.145 -0.152 -0.152 -0.159 -1 19.944 0.164 0.134 0.031 -0.110 -0.270 -0.360 -0.231 -0.136 -0.117 -0.134 -0.147 -0.142 -1 20.444 0.157 0.137 -0.137 -0.110 -0.274 -0.300 -0.214 -0.126 -0.112 -0.119 -0.137 -0.135 -1 20.444 0.157 0.138 0.035 -0.108 -0.253 -0.308 -0.221 -0.121 -0.112 -0.119 -0.137 -0.135 -1 20.444 0.175 0.138 0.035 -0.108 -0.253 -0.308 -0.221 -0.121 -0.109 -0.114 -0.124 -0.122 -0.129 -0.124 -0.125 -0.1 | | | | | | | | | | | | | | -0.1 |
| 19.444 | | | | | | | | | | | | | | -0.1 |
| 19.944 0.164 0.134 0.031 -0.110 -0.270 -0.366 -0.231 -0.136 -0.117 -0.134 -0.147 -0.142 -0.20.444 0.157 0.137 0.027 -0.110 -0.246 -0.303 -0.214 -0.128 -0.112 -0.119 -0.137 -0.135 -0.20.444 0.157 0.138 0.035 -0.108 -0.253 -0.308 -0.221 -0.121 -0.109 -0.114 -0.124 -0.122 | | | | | | | | | | | | | | -0.1 |
| 20.444 | | | | | | | | | | | | | | -0.1 |
| 20.944 0.175 0.136 0.035 -0.108 -0.263 -0.308 -0.221 -0.121 -0.109 -0.114 -0.124 -0.122 -0 | | | | | | | | | | | | | | -0.1 |
| | | | | | | | | | | | | | | -0.1 |
| 31 444 0 177 0 144 0 042 -0 109 -0 364 -0 363 -0 140 -0 044 -0 043 -0 037 -0 043 -0 033 | 21.444 | 0.177 | 0.144 | 0.042 | -0.102 | -0.254 | -0.352 | -0.188 | -0.076 | -0.043 | -0.037 | -0.042 | -0.023 | 0.1 |

Table 1.37 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_{\infty} = 1.2$ and $Re_D = 6.3 \cdot 10^5$

| | | | | | | r | | | w | | D | | |
|-------------|-------|-------|-------|--------|--------|----------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | * | | | Polar ar | ngle, Φ, | deg. | | | | | |
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 30 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 1.215 | 0.549 | 0.453 | 0.324 | 0.141 | 0.464 | -0.061 | 0.126 | 0.052 | 0.045 | 0.081 | 0.001 | 0.02 |
| 0.482 | 1.006 | 0.972 | 0.857 | 0.690 | 0.491 | 0.279 | 0.083 | -0.048 | -0.125 | -0.135 | -0.107 | -0.079 | -0.07 |
| 0.731 | 0.800 | 0.768 | 0.657 | 0.501 | 0.308 | 0.095 | -0.073 | -0.200 | -C.280 | -0.230 | -0.247 | -0.200 | -0.18 |
| 0.960 | 9.577 | 0.549 | 0.446 | 0.297 | C.120 | -0.070 | -0.241 | -0.358 | -0.428 | -0.409 | -0.367 | -0.302 | -0.2 |
| 1.238 | 0.380 | 0.355 | 0.253 | 0.112 | -0.052 | -C.225 | -0.381 | -0.472 | -0.551 | -0.518 | -0.469 | -0.389 | -0.3 |
| 1.500 | 0.213 | 0.192 | 0.102 | -0.021 | -C.167 | -0.328 | -0.467 | -0.572 | -0.625 | -0.570 | -0.507 | -0.376 | -0.35 |
| 1.944 | 0.265 | 0.246 | 0.141 | 0.004 | -0.167 | -0.347 | -0.505 | -0.619 | -0.584 | -0.570 | -0.355 | -0.194 | -0.13 |
| 2.444 | 0.213 | 0.230 | 0.130 | -0.030 | 0.138 | -0.399 | -0.557 | -0.671 | -0.554 | -0.573 | -0.395 | -0.147 | -0.01 |
| 2.944 | 0.220 | 0.199 | 0.102 | -0.055 | -0.230 | -0.430 | -0.505 | -0.451 | -0.440 | -0.635 | -0.485 | 0.001 | 0.02 |
| 3.444 | 0.213 | 0.175 | 0.075 | -0.080 | -0.255 | -0.455 | -0.471 | -0.337 | -0.351 | -0.620 | -0.531 | -0.125 | -0.06 |
| 3.944 | 0.203 | 0.168 | 0.062 | -0.090 | -0.270 | -0.474 | -0.471 | -0.262 | -0.292 | -0.373 | -0.516 | -0.126 | -0.06 |
| 4.464 | 0.216 | 0.178 | 0.063 | -0.096 | -0.292 | -0.485 | -0.263 | -0.213 | -0.267 | -0.227 | -0.262 | -C-274 | -0.20 |
| 4.944 | 0.170 | 0.169 | 0.064 | -0.102 | -0.292 | -0.508 | -0.269 | -0.231 | -0.236 | -0.203 | -0.197 | -0.225 | -0.18 |
| 5.444 | 0.185 | 0.147 | 0.028 | -0.133 | -0.317 | -0.314 | -0.232 | -0.197 | -0.202 | -0.193 | -0.178 | -0.197 | -0.21 |
| 5.944 | 0.179 | 0.145 | 0.026 | -0.133 | -0.323 | -0.514 | -0.191 | -0.169 | -0.190 | -0.212 | -0.188 | -0.191 | -C.19 |
| 6.444 | 0.177 | 0.157 | 0.033 | -0.130 | -0.304 | -0.449 | -0.213 | -0.179 | -0.175 | -0.197 | -0.181 | -0-175 | -0.17 |
| 6.944 | 0.186 | 0.153 | 0.036 | -0.124 | -0.301 | -0.455 | -0.197 | -0.157 | -0.125 | -0.144 | -0.160 | -0.144 | -0.14 |
| 7.444 | 0.186 | 0.153 | 0.036 | -0.124 | -0.301 | -C.455 | -0.182 | -0.157 | -0.119 | -0.126 | -0.129 | -0.132 | -0.12 |
| 7.944 | 0.204 | 0.184 | 0.059 | -0.071 | -0.242 | -0.387 | -0.201 | -0.123 | -0.132 | -0.122 | -0.119 | -0.138 | -0.12 |
| 8.444 | 0.197 | 0.173 | 0.057 | -0.093 | -C.255 | -0.377 | -0.168 | -C.123 | -0.141 | -2.129 | -0.129 | -0.123 | -0.1 |
| 8.944 | 0.215 | 0.159 | 0.057 | -0.083 | -0.245 | -0.365 | -0.207 | -0.123 | -0.129 | -0.132 | -0.123 | -0.120 | -0.11 |
| 9.444 | 0.194 | 0.171 | 0.060 | -0.077 | -0.245 | -0.384 | -0.173 | -0.126 | -0.129 | -0.132 | -0.132 | -0.126 | -0.12 |
| 9.944 | 0.206 | C.180 | 0.069 | -0.071 | -0.226 | -0.371 | -0.188 | -0.126 | -0.116 | -0.123 | -0.126 | -0.113 | -0.1 |
| 10.444 | 0.202 | 0.164 | 0.061 | -0.066 | -0.252 | -0.342 | -0.167 | -0-121 | -0.119 | -0.122 | -0.121 | -0.116 | -0.1 |
| 10.944 | 0.220 | 0.170 | 0.068 | -0.077 | -0.239 | -0.337 | -0.188 | -0.132 | -0.117 | -0.120 | -0.124 | -0.103 | -0.10 |
| 11.444 | 0.195 | 0.164 | 0.050 | -0.096 | -0.247 | -0.362 | -0.177 | -0-126 | -0.117 | -0.111 | -0.122 | -0.108 | -0.1 |
| 11.944 | 0.211 | 0.180 | 0.077 | -0.069 | -0.221 | -0.353 | -0.148 | -0.099 | -0.069 | -0.366 | -0.085 | -0.C65 | -0.00 |
| 12.444 | 0.215 | 0.185 | 0.074 | -0.074 | -0.234 | -0.275 | -0.095 | -0.178 | -0.079 | -0.092 | -0.084 | -0.094 | -0.08 |
| 12.944 | 0.235 | 0.191 | 0.082 | -0.059 | -0.199 | -0.259 | -0.139 | -0.692 | -0.036 | -0.111 | -0.106 | -0.121 | -0.1 |
| 13.444 | 0.227 | 0.195 | 0.087 | -0.061 | -0.213 | -0.315 | -0.159 | -0.113 | -0.111 | -0.119 | -0.122 | -0.130 | -0.12 |
| 13.944 | 0.224 | 0.203 | 0.106 | -0.038 | -0.187 | -0.343 | -0.196 | -0.135 | -0.135 | -0.133 | -0.121 | -0.130 | -0.1 |
| 14.444 | 0.225 | 0.210 | 0.100 | -0.049 | -0.200 | -0.359 | -0.200 | -0.131 | -0.127 | -0.129 | -0.113 | -0.115 | -0.1 |
| 14.944 | 0.227 | 0.217 | 0.094 | -0.059 | -C.212 | -0.375 | -0.185 | -0.127 | -0.119 | -0.124 | -0.105 | -0.106 | -0.10 |
| 15.444 | 0.187 | 0.164 | 0.068 | -0.080 | -0.220 | -0.366 | -0.164 | -0.123 | -0.133 | -0.146 | -0.122 | -0.130 | -0.11 |
| 15.944 | 0.190 | 0.155 | 0.042 | -0.104 | -0.244 | -0.311 | -0.151 | -0.126 | -0.141 | -0.149 | -C.143 | -0.153 | -0.1 |
| 16.444 | 0.193 | 0.142 | 0.039 | -0.108 | -C.263 | -0.326 | -0,166 | -0.119 | -0.109 | -0.127 | -0.129 | -0.135 | -0.11 |
| 16.944 | 0.229 | 0.155 | 0.053 | -0.098 | -0.258 | -0.291 | -0.099 | -G.C37 | -0.038 | -0.101 | -0.098 | -C.103 | -0.0 |
| 17.444 | 0.221 | 0.195 | 0.097 | -0.C48 | -0.199 | -0.287 | -0.195 | -0.121 | -0.119 | -0.119 | -0.114 | -0.127 | -0.1 |
| 17.944 | 0.214 | 0.191 | 0.090 | -0.054 | -0.180 | -0.353 | -0.185 | -0.126 | -C.128 | -0.130 | -0.127 | -0.125 | -0.1 |
| 18.444 | 0.190 | 0.155 | 0.054 | -0.085 | -0.242 | -0.361 | -0.199 | -0.140 | -0.141 | -0.140 | -0.132 | -0.135 | -0.1 |
| 18.944 | 0.179 | 0.156 | 0.057 | -0.090 | -0.255 | -0.338 | -0.211 | -0-140 | -0.135 | -0.136 | -0.135 | -0.122 | -0.11 |
| 19.444 | 0.175 | 0.126 | 0.025 | -0.119 | -0.269 | -0.353 | -0.159 | -0.110 | -0.112 | -0.122 | -C.141 | -0.130 | -0.1 |
| 19.944 | 0.191 | 0.152 | 0.048 | -0.091 | -0.250 | -0.305 | -0.161 | -0.097 | -0.093 | -0.090 | -0.105 | -0-073 | -0.0 |
| 20.444 | 0.190 | C.168 | 0.055 | -0.082 | -0.237 | -0.298 | -0.167 | -0.095 | -0.097 | -0.108 | -0.125 | -0.123 | -0.12 |
| 20.944 | 0.189 | 0.151 | 0.047 | -0.640 | -0.242 | -0.249 | -0.182 | -0.113 | -0.114 | -0.113 | -0.125 | -0.124 | -0.1 |
| 21.444 | 0.225 | 0.188 | 0.084 | -0.056 | -0.229 | -0.324 | -0.217 | -0.107 | -0.089 | -0.082 | -0.084 | -0.124 | -0.01 |
| | 4.227 | 0.100 | 0.004 | 0.036 | 0.227 | 0.324 | -0.21 | -0.107 | -0.089 | -0.002 | -0.084 | -0.008 | -0.01 |

Table 1.38 Experimental pressure coefficients c_p for $\alpha = 30^{\circ}$, $M_{\infty} = 0.7$ and $Re_D = 5.2 \cdot 10^{5}$

| | | | | | | • | | | w | | D | | |
|-------------|-------|-------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar | angle, Φ | deg. | | | | | |
| K/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 190 |
| 0.251 | 0.518 | 0.460 | 0.275 | 0.049 | 0.167 | -0.172 | -0.537 | -0.636 | -0.668 | -0.598 | -0.375 | -0.359 | -0.19 |
| 0.492 | 0.872 | 0.807 | 0.617 | 0.344 | 0.016 | -0.313 | -0.600 | -0.757 | -0.787 | -0.724 | -0.631 | -0.525 | -0.50 |
| 0.731 | 0.676 | 0.611 | 0.426 | 0.155 | -0.177 | -0.496 | -0.746 | -0.856 | -0.845 | -0.771 | -0.573 | -0.499 | -0.45 |
| 0.980 | 0.470 | 0.408 | 0.227 | -0.031 | -0.339 | -0.642 | -0.881 | -0.955 | -0.866 | -0.907 | -0.526 | -0.442 | -0.40 |
| 1.238 | 0.305 | 0.243 | 0.067 | -0.184 | -0.465 | -0.742 | -0.927 | -0.898 | -0.830 | -0.578 | -0.364 | -0.275 | -0.25 |
| 1.500 | 0.176 | 0.135 | -0.036 | -0.278 | -0.542 | -0.789 | -0.928 | -0.829 | -0.793 | -0.390 | -0.260 | -0.161 | -0.13 |
| 1.744 | 0.256 | 0.197 | 0.021 | -0.226 | -0.496 | -0.637 | -0.866 | -0.757 | -0.444 | -0.250 | -0.161 | -0.052 | 0.04 |
| 2.444 | 0.265 | 0.210 | 0.035 | -0.220 | -0.506 | -0.737 | -0.818 | -0.637 | -0.292 | -0.213 | -0.245 | -0.166 | 0.04 |
| 2.944 | 0.270 | 0.209 | 0.037 | -0.226 | -0.496 | -0.716 | -0.750 | -0.538 | -0.214 | -0.198 | -0.375 | -0.359 | -0.19 |
| 3.444 | 0.280 | 0.212 | 0.040 | -0.210 | -0.480 | -0.690 | -0.715 | -0.455 | -0.240 | -0.151 | -0.260 | -0.379 | -0.05 |
| 3.944 | 0.283 | 0.215 | 0.039 | -0.200 | -0.464 | -0.664 | -0.715 | -0.386 | -0.193 | -0.156 | -0.182 | -0.379 | -0.05 |
| 4.444 | 0.284 | 0.216 | 0.038 | -0.199 | -0.465 | -0.653 | -0.652 | -0.371 | -0.156 | -C.166 | -0.140 | -0.260 | -0.09 |
| 4.744 | 0.285 | 0.216 | 0.040 | -0.199 | -0.460 | -0.648 | -0.631 | -0.355 | -0.172 | -0.151 | -0.140 | -0.213 | -0.12 |
| 3.444 | 0.288 | 0,218 | 0.042 | -0.194 | -0.455 | -0.638 | -0.610 | -0.345 | -0.162 | -0.145 | -0.146 | -0.192 | -0.12 |
| 5.944 | 0.268 | 0.217 | 0.042 | -0.189 | -0.455 | -0.633 | -0.590 | -0.314 | -0.135 | -0.140 | -0.140 | -0.198 | -0.10 |
| 6.444 | 0.287 | 0-219 | 0.041 | -0.184 | -0.449 | -0.627 | -0.579 | -0.363 | -0.13C | -0.130 | -0.146 | -0.229 | -0.09 |
| 6.944 | 0.287 | 0.218 | 0.042 | -0.178 | -0.439 | -0.622 | -0.553 | -0-287 | -0.125 | -0.135 | -0.161 | -0.260 | -0.10 |
| 7.444 | 0.287 | 0.218 | 0.042 | -0.178 | -0.439 | -0.622 | -0.521 | -0.287 | -0.125 | -0.125 | -0.177 | -0.213 | -0.12 |
| 7.944 | 0.289 | 0.218 | 0.053 | -0.162 | -C.418 | -0.590 | -0.435 | -0.256 | -0-120 | -0.125 | -0.130 | -0.187 | -0.13 |
| 8.444 | 0.285 | 0.216 | 0.043 | -0.168 | -0.413 | -0.585 | -0.479 | -0.255 | -0.120 | -0.125 | -0.140 | -0.177 | -0.14 |
| 8.944 | 0.284 | 0.21 | 0.044 | -0.162 | -0.397 | -0.559 | -0.437 | -0.214 | -0.115 | -0.125 | -0.140 | -0.151 | -0.15 |
| 9.444 | 0.280 | 0.213 | 0.043 | -0.162 | -0.387 | -0.549 | -0.417 | -0.199 | -0.109 | -0.125 | -0.135 | -0.135 | -0.17 |
| 9.944 | 0.282 | 0.214 | 0.049 | -0.152 | -0.371 | -0.522 | -0.381 | -0.172 | -0.099 | -0.114 | -0-120 | -0.119 | -0.16 |
| 10.444 | 0.205 | 0.216 | 0.053 | -0-144 | -0.351 | -0.507 | -0.356 | -0.135 | -0.095 | -0.113 | -0.114 | -0.121 | -0.16 |
| 10.944 | 0.283 | 0.214 | 0.054 | -0.136 | -0.337 | -0.493 | -0.331 | -C.119 | -0.097 | -0.113 | -0.116 | -0.137 | -C.16 |
| 11.444 | 0.260 | 0.219 | 0.060 | -0.136 | -0.332 | -0.491 | -0.342 | -0.127 | -0.106 | -0.122 | -0.124 | -0.140 | -0.17 |
| 11.944 | 0.281 | 0.223 | 0.063 | -0.131 | -0.318 | -0.483 | -0.331 | -0.146 | -0.111 | -0.116 | -0.122 | -0.129 | -0.1 |
| 12.444 | 0.280 | 0.224 | 0.063 | -0.128 | -0.316 | -C.504 | -0.379 | -0.160 | -0.138 | -0.129 | -0.135 | -0.132 | -0.17 |
| 12.944 | 0.283 | 0.228 | 0.065 | -0-126 | -0.313 | -0.510 | -0.374 | -0.167 | -0.130 | -0.178 | -0-124 | -0.135 | -0.18 |
| 13.444 | 0.279 | 0.223 | 0.056 | -0.131 | -0.318 | -0.531 | -0.377 | -0.186 | -0.143 | -0.173 | -0-122 | -0.148 | -0.19 |
| 13.944 | 0.273 | 0.219 | 0.048 | -0.134 | -0.332 | -0.545 | -0.428 | -0.205 | -0.154 | -0.167 | -0.135 | -0.161 | -0.20 |
| 14.444 | 0.274 | 0.219 | 0.046 | -0-134 | -0.344 | -0.553 | -0.460 | -0.223 | -0.173 | -0.166 | -0.131 | -0.160 | -0.23 |
| 14.944 | 0.274 | 0.219 | 0.044 | -0.134 | -0.356 | -0.561 | -0.471 | -0.241 | -0.192 | -0.165 | -0.127 | -0.159 | -0.20 |
| 15.444 | 0.273 | 0.215 | 0.040 | -0.139 | -0.366 | -0.550 | -0.479 | -0.249 | -0.152 | -0.162 | -0.127 | -0.159 | -0.19 |
| 15.944 | 0.275 | 0.220 | 0.044 | -0.139 | -0.375 | -0.532 | -0.468 | -0.246 | -0.146 | -0.159 | -0.132 | -0.154 | -0.16 |
| 16.444 | 0.259 | 0.214 | 0.040 | -0.150 | -0.389 | -0.518 | -0.460 | -0.230 | -0.138 | -0.157 | -0.119 | -0.156 | -0.18 |
| 16.944 | 0.268 | 0.214 | 0.044 | -0.152 | -0.386 | -0.491 | -0.439 | -0.208 | -0.130 | -0.148 | -0.122 | -0.151 | -0.16 |
| 17.444 | 0.273 | 0.219 | 0.054 | -0.147 | -0.381 | -0.464 | -0.420 | -0.184 | -0-122 | -0.146 | -0.135 | -0.143 | -0.16 |
| 17.944 | 0.273 | 0.219 | 0.062 | -0.144 | -0.364 | -0.440 | -0.396 | -0.165 | -0.114 | -0.138 | -0.113 | -0.130 | -0.18 |
| 16.444 | 0.270 | 0.214 | 0.063 | -0.147 | -0.362 | -0.435 | -0.377 | -0.149 | -0.111 | -0.135 | -0.100 | -0.127 | -0.16 |
| 18.944 | 0.273 | 0.222 | 0.072 | -0.139 | -C.345 | -0.424 | -0.363 | -0.144 | -0.111 | -0.127 | -0.100 | -0.124 | -0.17 |
| 19.444 | 0.275 | 0.226 | 0.077 | -0.131 | -0.332 | -0.423 | -0.358 | -0.141 | -0.111 | -0.124 | -0.114 | -0.124 | -0.10 |
| 19.944 | 0.283 | 0.234 | 0.082 | -0.128 | -0.327 | -0.442 | -0.363 | -0.144 | -0.111 | -0.119 | -0.095 | -0.116 | -0.1 |
| 20.444 | 0.291 | 0.240 | 0.090 | -0.114 | -0.308 | -0.437 | -0.347 | -0.149 | -0.108 | -0.114 | -0.095 | -0.111 | -0.1 |
| 20.944 | 0.271 | 0.245 | 0.093 | -0.104 | -0.292 | -0.440 | -0.345 | -0.149 | -0.100 | -0-108 | -0.119 | -0.105 | -0.13 |
| 21.444 | 0.279 | 0.250 | 0.097 | -0.085 | -0.284 | -0.407 | -0.323 | -0.141 | -0.084 | -0.087 | -0.095 | -0.079 | 0.16 |

Table 1.39 Experimental pressure coefficients c_p for α = 30°, M_{∞} = 0.8 and Re_D = 5.6 · 10⁵

| Coordinates | | | | | | Polar | angle, o | deg. | | | | | |
|-------------|-------|-------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|-------|
| X/D | ٥ | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.533 | 0.135 | 0.288 | 0.080 | 0.247 | -0.076 | -0.488 | -0.577 | -0.629 | -0.566 | -0.413 | -0.345 | -0.22 |
| 0.482 | 0.905 | 0.840 | 0.664 | 0.404 | 0.078 | -0.239 | -0.536 | -0.731 | -0.805 | -6.747 | -0.690 | -0.582 | -0.56 |
| 0.731 | 0.704 | 0.638 | 0.467 | 0.208 | -0.116 | -0.432 | -0.702 | -0.673 | -0.933 | -0.851 | -0./38 | -0.600 | -0.5 |
| 0.980 | 0.487 | 0.426 | 0.255 | 0.011 | -0.296 | -0.603 | -0.881 | -1.060 | -1.043 | -0.982 | -0.664 | -C.550 | -0.4 |
| 1.238 | 0.307 | 0.246 | 0.077 | -0.161 | -0.445 | -0.743 | -1.012 | -1.037 | -1.007 | -0.680 | -0.405 | -0.292 | -2.20 |
| 1.500 | 0.180 | 0.122 | -0.041 | -0.280 | -0.555 | -0.848 | -1.035 | -0.932 | -0.010 | -0.461 | -0.247 | -0.156 | -0.1 |
| 1.944 | 0.246 | 0.186 | 0.011 | -0.232 | -0.529 | -0.704 | -0.926 | -0.643 | -0.406 | -0.278 | -0.155 | -0.042 | 0.0 |
| 2.444 | 0.260 | 0.203 | 0.030 | -0.220 | -0.520 | -0.777 | -0.834 | -0.502 | -0.279 | -0.260 | -0.291 | -0.143 | 0.0 |
| 2.944 | 0.266 | 0.208 | 0.033 | -0.223 | -0.497 | -0.737 | -0.730 | -C.419 | -0.230 | -0.238 | -0.414 | -0.344 | -0.2 |
| 3.444 | 0.275 | 0.212 | 0.040 | -0.210 | -0.484 | -0.698 | -0.669 | -C.353 | -0.265 | -C.230 | -0.340 | -0.366 | -C.I |
| 3.944 | 0.284 | 0.218 | 0.044 | -0.192 | -0.458 | -0.667 | -0.669 | -C.296 | -0.221 | -0.208 | -0.261 | -0.366 | -0.1 |
| 4.444 | 0.287 | 0.221 | 0.044 | -0.192 | -0.458 | -0.658 | -0.555 | -0.278 | -0.190 | -0.177 | -0.199 | -0.316 | -0.1 |
| 4.944 | 0.288 | 0.223 | 0.046 | -0.188 | -0.454 | -0.649 | -0.516 | -0.265 | -0.212 | -0.177 | -0.192 | -0.265 | -0.1 |
| 5.444 | 0.290 | 0.223 | 0.048 | -0.183 | -0.450 | -0.645 | -0.480 | -0.252 | -0.195 | -0.173 | -0.191 | -9.252 | -0.1 |
| 5.944 | 0.291 | 0.223 | 0.048 | -0.183 | -0.445 | -0.636 | -0.458 | -0.235 | -0.182 | -0.168 | -0.195 | -0.252 | -0.1 |
| 6.444 | 0.269 | 0.223 | 0.049 | -0.174 | -0.441 | -0.627 | -0.436 | -0.221 | -0.168 | -0.154 | -0.199 | -0.274 | -0.1 |
| 6.944 | 0.290 | 0.225 | 0.050 | -0.170 | -0.432 | -0.623 | -0.423 | -0.226 | -0.164 | -0.164 | -0.213 | -0.313 | -0.1 |
| 7.444 | 0.290 | 0.225 | 0.050 | -0.170 | -0.432 | -0.623 | -0.397 | -0.226 | -0.169 | -0.155 | -0.225 | -0.265 | -0.1 |
| 7.944 | 0.290 | 0.227 | 0.062 | -0.157 | -0.411 | -0.582 | -0.383 | -0.175 | -2.155 | -0.155 | -0.173 | -0.230 | -0.1 |
| 3.444 | 0.236 | 0.225 | 0.051 | -0.157 | -0.406 | -0.582 | -0.375 | -0.195 | -0.144 | -0.151 | -0.168 | -0.239 | -0.1 |
| 8.744 | 0.286 | 0.224 | 0.051 | -0.148 | -C.393 | -C.556 | -0.356 | -0.186 | -0.133 | -0.151 | -0.155 | -0.221 | -0-1 |
| 9.444 | 0.282 | 0.221 | 0.052 | -0.143 | -C.384 | -0.547 | -0.352 | -0.182 | -0.129 | -0.142 | -0.147 | -0.182 | -0.2 |
| 9.944 | 0.284 | 0.222 | 0.060 | -0.130 | -0.367 | -0.521 | -0.325 | -0.177 | -0.116 | -0.129 | -0.129 | -0.147 | -0.1 |
| 10.444 | 0.286 | 0.223 | 0.068 | -0.128 | -0.347 | -0.498 | -0.312 | -0.159 | -0.102 | -0.115 | -0.116 | -0.141 | -0.1 |
| 10.944 | 0.285 | 0.224 | 0.071 | -0.121 | -0.340 | -0.484 | -0.301 | -0.132 | -0.105 | -0.118 | -0.122 | -0.153 | -C-1 |
| 11.444 | 0.281 | 0.224 | 0.073 | -0.124 | -0.335 | -0.492 | -0.298 | -0-136 | -0.116 | -0.127 | -0-138 | -0.162 | -0.1 |
| 11.944 | 0.282 | 0.226 | 0.074 | -0.119 | -2.322 | -0.475 | -0.285 | -0.141 | -0-121 | -0.125 | -0.145 | -0.157 | -0.1 |
| 12.444 | 0.280 | 0.224 | 0.074 | -0.121 | -C.322 | -0.489 | -0.278 | -0-145 | -0.143 | -0.140 | -0-161 | -0.164 | -C.1 |
| 12.944 | 0.284 | 0.227 | 0.077 | -0.121 | -0.317 | -0.495 | -0.250 | -C.145 | -0.155 | -0.179 | -0.172 | -0.166 | -0.1 |
| 13.444 | 0.280 | 0.222 | 0.068 | -0.135 | -0.329 | -0.505 | -0.276 | -C.157 | -0.168 | -0.188 | -C.184 | -0.177 | -0.2 |
| 13.944 | 0.274 | 0.218 | 0.060 | -0.142 | -0.338 | -0.526 | -0.285 | -0.170 | -0.191 | -0.197 | -0.197 | -0.191 | -0.2 |
| 14.444 | 0.275 | 0.219 | 0.060 | -0.144 | -0.347 | -0.533 | -0.305 | -C.192 | -0.209 | -0.202 | -0.198 | -0.195 | -0.2 |
| 14.944 | 0.276 | 0.227 | 0.060 | -0.146 | -0.355 | -0.539 | -0.322 | -0.193 | -0.227 | -0.208 | -0.200 | -0.200 | -0.2 |
| 15.444 | 0.273 | 0.219 | 0.055 | -0.149 | -C.362 | -0.535 | -0.335 | -0.210 | -0.206 | -0.208 | -0.138 | -0.213 | -0-2 |
| 15.744 | 0.277 | 0.221 | 0.058 | -0.149 | -0.369 | -0.519 | -0.340 | -0.237 | -0.197 | -0.204 | -0.191 | -7.222 | -0.1 |
| 16.444 | 0.270 | 0.216 | 0.054 | -0.160 | -C.381 | -0.519 | -0.365 | -0.209 | -0.190 | -0.139 | -0.168 | -0-233 | -0.1 |
| 16.944 | 0.269 | 0.216 | 0.057 | -0.158 | -C.391 | -0.501 | -0.369 | -0.204 | -0.172 | -0.186 | -0.163 | -0.233 | -0.1 |
| 17.444 | 0.275 | 0.222 | 0.067 | -0.149 | -0.376 | -0.483 | -0.362 | -0.173 | -0.161 | -0.172 | -0.172 | -0.222 | -0.1 |
| 17.944 | 0.273 | 0.223 | 0.074 | -0.140 | -0.363 | -0.458 | -0.355 | -0.182 | -0.145 | -C.161 | -0.139 | -0.205 | -0.1 |
| 18.444 | 0.271 | 0.221 | 0.073 | -0.142 | -0.361 | -0.453 | -G.351 | -C.168 | -C.143 | -0.150 | -0.123 | -0.168 | -0.1 |
| 18.944 | 0.274 | 0.224 | 0.082 | -0.131 | -0.345 | -0.437 | -0.340 | -0.159 | -0.139 | -0.140 | -0.125 | -C.170 | -0.1 |
| 19.444 | 0.276 | 0.228 | 0.089 | -0.119 | -0.327 | -0.428 | -0.326 | -0.145 | -0.136 | -0.136 | -0.143 | -0.157 | -0.1 |
| 19.944 | 0.216 | 0.235 | 0.095 | -0.119 | -0.327 | -0.441 | -0.317 | -0.136 | -0.136 | -0.129 | -0.138 | -0.141 | -0.1 |
| | 0.286 | 0.247 | 0.108 | -0.099 | -C.3C6 | -0.423 | -0.294 | -0.127 | -0.136 | -0.129 | -0.127 | -0.132 | -0.1 |
| 20.444 | | | 0.111 | -0.094 | -0.288 | -0.419 | -0.282 | -0.118 | | -0.120 | -0.148 | -0.123 | |
| 20.944 | 0.294 | 0.244 | 0.116 | -0.078 | -0.277 | -0.419 | | | -0.134 | | | | -0.1 |
| 21.444 | 0.280 | 0.244 | 0.116 | -0.078 | -0.211 | -0.378 | -0.244 | -0.102 | -0.116 | -0.102 | -0.123 | -0.096 | 0.1 |

Table 1.40 Experimental pressure coefficients c_p for α = 30°, M_{∞} = 0.9 and Re_D = 5.9 · 10⁵

| | | | | | | Р | | | w | | D | | |
|-------------|-------|-------|--------|--------|--------|--------|-----------------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar | angle, Φ | deg. | | | | | |
| X/D | • | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.544 | 0.432 | 0.312 | 0.133 | 0.351 | 0.044 | -0.375 | -0.448 | -0.509 | -0.459 | -0.458 | -0.290 | -0.26 |
| 0.482 | 0.950 | 0.892 | 0.730 | 0.488 | 0.179 | -0.117 | -0.406 | -0.598 | -0.676 | -0.644 | -0.585 | -0.502 | -0.49 |
| 0.731 | 0.746 | 0.690 | 0.530 | 0.293 | -C.017 | -0.309 | -0.572 | -0.761 | -0.848 | -0.798 | -0.739 | -0.621 | -0.5 |
| 0.960 | 0.522 | 0.471 | 0.317 | 0.091 | -0.198 | -C.478 | -0.744 | -0.934 | -1.013 | -0.943 | -0.893 | -0.703 | -C. e |
| 1.239 | 0.332 | 0.277 | 0.127 | -0.091 | -0.360 | -0.628 | -0.882 | -1.068 | -1.090 | -1.085 | -0.903 | -0.766 | -0.7 |
| 1.500 | 0.182 | 0.129 | -0.014 | -0.230 | -2.499 | -0.752 | -0.997 | -0.987 | -1.060 | -1.022 | -0.743 | -0.416 | -0.3 |
| 1.944 | 0.236 | 0.101 | 0.029 | -0.199 | -0.491 | -0.702 | -0.943 | -0.648 | -0.703 | -0.893 | -0.394 | 0.063 | 0.1 |
| 2.444 | 0.250 | 0.200 | 0.045 | -0.220 | -0.526 | -0.690 | -0.432 | -0.367 | -0.427 | -0.828 | -2.448 | 0.023 | 0.0 |
| 2.944 | 0.253 | 0.188 | 0.050 | -0.230 | -0.503 | -0.685 | -0.525 | -0.325 | -0.335 | -0.290 | -0.459 | -0.286 | -0.2 |
| 3.444 | 0.270 | 0.204 | 0.055 | -0.205 | -0.434 | -0.675 | -0.557 | -0.260 | -0.274 | -0.244 | -0.309 | -0.286 | -G.2 |
| 3.944 | 0.281 | 0.217 | 0.057 | -0.172 | -0.441 | -0.609 | -0.557 | -0.210 | -0.655 | -0.217 | -0.209 | -C.286 | -0.2 |
| 4.444 | 0.287 | 0.220 | 0.056 | -C.164 | -C.426 | -0.629 | -0.414 | -0.179 | -0.209 | -0.202 | -0.205 | -0.198 | -0.2 |
| 4.744 | 0.289 | 0.224 | 0.064 | -0.157 | -0.422 | -0.602 | -0.403 | -0.183 | -0.197 | -0.163 | -0.194 | -C.166 | -0.2 |
| 5.444 | 0.294 | 0.227 | 0.064 | -0.153 | -0.414 | -0.602 | -0.361 | -0.167 | -0.167 | -0.171 | -0.179 | -C.159 | -0.1 |
| 5.944 | 0.294 | 0.228 | 0.068 | -0.149 | -0.407 | -0.579 | -0.337 | -0.171 | -0.159 | -0.164 | -0.171 | -0.148 | -0.1 |
| 6.444 | 0.293 | 0.230 | 0.071 | -0.138 | -0.403 | -0.583 | -0.330 | -0.159 | -C.151 | -0.156 | -0.167 | -C.143 | -0.1 |
| 6.944 | 0.295 | 0.233 | 0.074 | -0-134 | -0.391 | -0.552 | -0.322 | -0.163 | -0.148 | -0.152 | -0.167 | -0.160 | -0.1 |
| 7.444 | 0.295 | 0.233 | 0.074 | -0.134 | -0.391 | -0.552 | -0.314 | -0.163 | -0.144 | -0.144 | -0.175 | -0.152 | -0.1 |
| 7.944 | 0.294 | 0.235 | 0.086 | -0.122 | -0.364 | -0.534 | -0.315 | -0.163 | -0.132 | -0.140 | -0.144 | -0.136 | -0.1 |
| 8.444 | 0.288 | 0.234 | 0.074 | -0.134 | -0.368 | -0.537 | -0.321 | -0.103 | -0.136 | -0.140 | -0.140 | -0.144 | -0.1 |
| £.944 | 0.287 | 0.237 | 0.078 | -0.130 | -0.360 | -0.529 | -0.321 | -0.209 | -0.133 | -0.144 | -0.144 | -0.159 | -C.1 |
| 9.444 | 0.285 | 0.228 | 0.075 | -0.137 | -0.360 | -0.529 | -0.329 | -0.228 | -0.140 | -0.151 | -0.152 | -0.163 | -0.1 |
| 9.744 | 0.284 | 0.230 | 0.081 | -0.130 | -0.352 | -0.525 | -0.326 | -0.232 | -0.140 | -0.144 | -0.144 | -0.148 | -0.1 |
| 10.444 | 0.287 | 0.233 | 0.081 | -0.140 | -0.338 | -0.514 | -0.330 | -0.217 | -0.139 | -0.141 | -0.135 | -0.141 | -0.1 |
| 10.944 | 0.287 | 0.235 | 0.082 | -0.133 | -0.340 | -0.516 | -0.320 | -0.197 | -0.151 | -0.145 | -0.141 | -0.151 | -0.1 |
| 11.444 | 0.283 | 0.230 | 0.077 | -0.136 | -0.342 | -0.532 | -0.316 | -0.197 | -0.165 | -0.157 | -0.159 | -0.165 | -0.i |
| 11.944 | 0.284 | 0.232 | 0.079 | -0.132 | -0.332 | -0.526 | -0.300 | -0.184 | -0.167 | -0.155 | -0.151 | -0.169 | -C.1 |
| 12.444 | 0.284 | 0.231 | 0.077 | -0.131 | -0.340 | -0.530 | -0.292 | -C.179 | -0.177 | -0.175 | -0.171 | -0.173 | -0.1 |
| 12.944 | 0.288 | 0.239 | 0.079 | -0.129 | -0.334 | -0.520 | -0.276 | -0.171 | -0.173 | -0.195 | -0.179 | -0.173 | -0.1 |
| 13.444 | 0.284 | 0.229 | 0.073 | -0.131 | -0.334 | -0.516 | -0.266 | -0.167 | -0.175 | -0.195 | -0.177 | -0.177 | -0.1 |
| 13.944 | 0.278 | 0.223 | 0.058 | -0.133 | -0.344 | -0.502 | -0.266 | -0.167 | -0.176 | -0.193 | -0.183 | -0.181 | -c.1 |
| 14.444 | 0.279 | 0.224 | 0.071 | -0.128 | -0.345 | -0.486 | 0.003 | -C-172 | -0.182 | -0.190 | -0.161 | -0.175 | -0.1 |
| 14.944 | 0.281 | 0.225 | 0.074 | -0.123 | -0.345 | -0.470 | -0.261 | -0.178 | -0.187 | -0.187 | -0.179 | -0.177 | -C.1 |
| 15.444 | 0.279 | 0.226 | 0.074 | -0.121 | -0.347 | -0.466 | -0.261 | -0.196 | -0.179 | -0.181 | -0.167 | -C.177 | -0.1 |
| 15.944 | 0.284 | 0.229 | 0.079 | -0.117 | -0.344 | -0.458 | -0.269 | -0.197 | -0.171 | -0.175 | -0.169 | -0.171 | -0.1 |
| 16.444 | 0.275 | 0.227 | 0.074 | -0.125 | -0.351 | -0.453 | -0.283 | -0.207 | -0.165 | -0.169 | -0.153 | -0.171 | -0.1 |
| 16.944 | 0.276 | 0.222 | 0.076 | -0.125 | -C.345 | -0.453 | -0.289 | -0.215 | -0.159 | -0.161 | -0.147 | -0.163 | -0.1 |
| 17.444 | 0.282 | 0.230 | 0.084 | -0.121 | -0.336 | -0.433 | -0.292 | -0.215 | -0.151 | -0.152 | -0.157 | -0.155 | -0.1 |
| 17.944 | 0.281 | 0.231 | 0.089 | -0.115 | -0.321 | -0.431 | -0.301 | -0.210 | -0.145 | -0.143 | -0.143 | -0.149 | -0.1 |
| 10.444 | 0.280 | 0.229 | 0.036 | -0.123 | -0.323 | -C.429 | -0.301 | -0.201 | -0.143 | -0.139 | -0.124 | -0.145 | |
| 10.944 | 0.283 | 0.234 | 0.092 | -0.109 | -0.309 | -0.428 | -0.293 | -0.185 | -0.139 | -0.134 | -0.126 | -0.136 | -0.1 |
| 19.444 | 0.287 | 0.237 | 0.098 | -0.105 | -0.293 | -0.430 | -0.201 | | -0.139 | | | | -0.1 |
| 19.944 | 0.297 | 0.248 | 0.103 | -0.105 | -0.302 | -0.435 | -0.273 | -0.161 | -0.135 | -0.130 | -0.143 | -0.133 | -0.1 |
| 20.444 | 0.313 | | | | | | | | | | -0.143 | -0.118 | -0.1 |
| 20.744 | 0.309 | 0.254 | 0.121 | -0.081 | -0.251 | -0.423 | -0.254 | -0.116 | -0.116 | -7.111 | -0.122 | -0.108 | -0.1 |
| 21.444 | 0.300 | 0.262 | | -0.013 | | -0.393 | -0.221 | -0.088 | -0.098 | -0.098 | -0.124 | -0.092 | -0.0 |
| 44.777 | 0.300 | 0.256 | 0.126 | -0.049 | -0.241 | -0.328 | -0.186 | -0.0.5 | -0.062 | -0.068 | -0.094 | -0.055 | 0.1 |

Table 1.41 Experimental pressure coefficients c_p for ρ = 30°, M_{∞} = 0.95 and Re_D = 6.0 · 10⁵

| | | | | | | Р | | | ω | | D | | |
|-------------|-------|-------|-------|--------|--------|--------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar | angle, Φ | , deg. | | | | | |
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.551 | 0.427 | 0.321 | 0.146 | 0.400 | 0.110 | -0.332 | -0.365 | -0.438 | -0.386 | -0.404 | -0.201 | -0.14 |
| 0.452 | 0.979 | 0.926 | 0.769 | 0.535 | C.232 | -0.049 | -0.329 | -0.514 | -0.601 | -0.564 | -0.510 | -0.433 | -C.42 |
| 0.731 | 0.779 | 0.727 | 0.573 | 0.344 | C.037 | -0.238 | -0.485 | -0.667 | -0.761 | -0.716 | -0.662 | -0.557 | -0.51 |
| 3.980 | 0.558 | 0.509 | 0.360 | 0.142 | -C.140 | -0.402 | -0.656 | -0.531 | -0.925 | -0.861 | -0-807 | -0.641 | -0.6 |
| 1.238 | 0.363 | 0.313 | 0.167 | -0.038 | -0.304 | -0.551 | -0.791 | -0.765 | -1.052 | -1.003 | -0.362 | -0.710 | -0.6 |
| 1.500 | 0.204 | 0.156 | 0.017 | -0.185 | -0.443 | -0.679 | -0.903 | -1.065 | -1.137 | -1.097 | -0.877 | -0.649 | -0.6 |
| 1.944 | 0.250 | 0.201 | 0.052 | -0.163 | -C.443 | -0.668 | -0.739 | -1.110 | -1.042 | -0.925 | -0.835 | -0.274 | -0.0 |
| 2.444 | 0.200 | 0.195 | 0.035 | -0.180 | -0.486 | -0.759 | -0.936 | -0.627 | -0.660 | -1.045 | -0.732 | -0.096 | 0.0 |
| 2.944 | 0.295 | 0.163 | 0.009 | -0.233 | -0.515 | -0.785 | -0.332 | -0.449 | -0.536 | -0.599 | -2.405 | -0.198 | -0.1 |
| 3.444 | 0.300 | 0.157 | 0.045 | -0.240 | -0.519 | -0.716 | -0.329 | -0.299 | -0.307 | -0.269 | -0.456 | -0.307 | -0.1 |
| 3.944 | 0.300 | 0.189 | 0.020 | -0.222 | -0.264 | -C.362 | -0.329 | -0.234 | -0.234 | -0.244 | -0.248 | -0.307 | -0.1 |
| 4.444 | 0.301 | 0.244 | 0.095 | -0.170 | -0.406 | -0.625 | -0.343 | -0.205 | -0.213 | -0.186 | -0.183 | -0.212 | -0.2 |
| 4.944 | 0.297 | 0.236 | 0.079 | -0.141 | -0.417 | -0.635 | -0.321 | -0.194 | -0.187 | -0.172 | -0.158 | -0.154 | -0.1 |
| 5.444 | 0.301 | 0.239 | 0.071 | -0.134 | -C.366 | -0.519 | -0.347 | -0.169 | -0.158 | -0.190 | -0.165 | -0.143 | -0.1 |
| 5.744 | 0.299 | 0.239 | 0.080 | -0.130 | -0.395 | -0.614 | -0.292 | -0.154 | -0.147 | -0.157 | -0.161 | -0.147 | -0.1 |
| 6.444 | 0.297 | 0.237 | 0.077 | -0.141 | -0.377 | -C.581 | -0.311 | -C.153 | -0.143 | -0.153 | -0.154 | -0-147 | -0.1 |
| 6.944 | 0.301 | 0.245 | 0.077 | -0.123 | -0.373 | -0.534 | -0.281 | -0.143 | -0.143 | -0.150 | -0.154 | -0.147 | -0.1 |
| 7.444 | 0.301 | 0.245 | 0.077 | -0.123 | -0.373 | -0.534 | -0.285 | -0.143 | -0.147 | -0.143 | -0.158 | -C-135 | -0.1 |
| 7.944 | 0.300 | 0.245 | 0.091 | -0.119 | -0.351 | -0.519 | -0.263 | -0-147 | -0.136 | -0.146 | -0.143 | -0.125 | -0.1 |
| 8.444 | 0.273 | 0.243 | 0.081 | -0.115 | -0.366 | -0.545 | -0.270 | -0.147 | -0.140 | -2.139 | -0.136 | -0.140 | -0.1 |
| 8.944 | 0.291 | 0.239 | 0.087 | -0.126 | -0.351 | -0.530 | -0.260 | -0.161 | -0.136 | -0.150 | -0.139 | -0.154 | -0.1 |
| 9.444 | 0.287 | 0.235 | 0.080 | -0.130 | -0.362 | -0.527 | -0.267 | -0.176 | -0.143 | -0.157 | -G.150 | -0.165 | -0.1 |
| 9.944 | 0.288 | 0.235 | 0.089 | -0.123 | -0.362 | -0.541 | -0.256 | -0.183 | -0.140 | -0.146 | -0.150 | -0.154 | -0.1 |
| 10.444 | 0.289 | 0.236 | 0.001 | -0.129 | -0.351 | -0.510 | -0.257 | -0.177 | -0.135 | -0.144 | -0.139 | -0.148 | -0.1 |
| 10.944 | 0.288 | 0.238 | 0.088 | -0.123 | -0.353 | -0.533 | -0.251 | -0.171 | -0.141 | -0.146 | -0.141 | -0.154 | -C.1 |
| 11.444 | 0.284 | 0.233 | 0.088 | -0.133 | -0.353 | -0.509 | -0.261 | -0.173 | -0.152 | -0.154 | -3.156 | -0.165 | -0.1 |
| 11.944 | 0.286 | 0.235 | 0.085 | -0.125 | -0.352 | -0.529 | -0.250 | -0.165 | -0.147 | -0.146 | -0.154 | -0.165 | -0.1 |
| 12.444 | | | | -0.127 | | -0.529 | | -0.160 | | -0.161 | | -0.169 | |
| 12.944 | 0.286 | 0.233 | 0.085 | -0.118 | -0.344 | -0.511 | -0.257 | -0.156 | -0.158 | -0.174 | -0.156 | | -C-1 |
| | | | | -0.111 | -0.337 | -0.511 | -0.257 | -0.158 | | -0.174 | | -0.165 | -0.1 |
| 13.444 | 0.287 | 0.232 | 0.031 | | | | | -0.158 | -0.150 | | -0.150 | | -0.1 |
| 13.944 | 0.280 | 0.229 | 0.074 | -0.125 | -0.331 | -0.494 | -0.259 | -0.158 | -0.167 | -0.172 | -0.152 | -0.173 | -0.I |
| 14.444 | 0.282 | 0.230 | 0.076 | -0.121 | -C.335 | -0.486 | -0.260 | | -0.177 | -0.170 | -0.150 | -0.170 | -0.1 |
| 14.944 | 0.284 | 0.231 | 0.078 | -0.116 | -0.339 | -0.477 | -0.266 | -0.158 | -0.186 | -0.168 | -0.148 | -0.167 | -0.1 |
| 15.444 | 0.230 | 0.230 | 0.076 | -0.112 | -0.329 | -0.468 | -0.265 | -0-160 | -0.182 | -0.166 | -0.137 | -0.165 | -0.1 |
| 15.944 | 0.285 | 0.233 | 0.080 | -0.112 | -0.327 | -0.453 | -0.268 | -0.159 | -0.177 | -0.165 | -0.139 | -0.162 | -0.1 |
| 16.444 | 0.278 | 0.227 | 0.074 | -0.122 | -0.337 | -0.447 | -0.268 | -0.151 | -0.171 | -0.163 | -0.141 | -0.162 | -0.1 |
| 16.944 | 0.278 | 0.227 | 0.075 | -0.122 | -0.331 | -0.430 | -0.261 | -0.163 | -0.162 | -0.159 | -0.139 | -0.156 | -0.1 |
| 17.444 | 0.283 | 0.233 | 0.085 | -C.118 | -0.333 | -0.432 | -0.257 | -0.160 | -0.152 | -0.151 | -0.143 | -0.150 | -0.1 |
| 17.944 | 0.231 | 0.234 | 0.088 | -0.110 | -0.327 | -C.419 | -0.244 | -0.159 | -0.143 | -0.144 | -0.139 | -0.145 | -0.1 |
| 18.444 | 0.281 | 0.231 | 0.086 | -0.118 | -0.323 | -0.408 | -0.238 | -0.152 | -0.134 | -0.137 | -0.115 | -0.137 | -0.1 |
| 18.944 | 0.286 | 0.237 | 0.095 | -0.106 | -0.316 | -0.410 | -0.222 | -0.141 | -0.120 | -0.126 | -0.103 | -C.123 | -0.1 |
| 19.444 | 0.288 | 0.241 | 0.102 | -0.099 | -C.308 | -0.410 | -0.205 | -C.130 | -0.109 | -0.116 | -0.105 | -0.117 | -0.1 |
| 19.944 | 0.302 | 0.251 | 0.108 | -0.101 | -0.318 | -0.415 | -0.197 | -0.113 | -0.074 | -0.099 | -0.103 | -0.102 | -0.0 |
| 20.444 | 0.316 | 0.267 | 0.127 | -0.074 | -0.292 | -0.404 | -0.173 | -0.094 | -0.075 | -0.083 | -0.081 | -0.085 | -0.0 |
| 20.944 | 0.315 | 0.269 | 0.133 | -0.061 | -0.256 | -0.376 | -0.148 | -0.066 | -0.057 | -0.060 | -0.058 | -0.064 | -0.0 |
| 21.444 | 0.308 | 0.264 | 0.139 | -0.033 | -0.211 | -0.307 | -0.113 | -0.025 | -0.021 | -0.025 | -0.030 | -0.021 | 0.2 |

Table 1.42 Experimental pressure coefficients c_p for α = 30°, M_{∞} = 1.0 and Re_D = 6.1 \cdot 10⁵

| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
|-------------|-------|-------|--------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| x/0 | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.584 | 0.460 | 0.368 | 0.202 | 0.091 | C.172 | -0.392 | -0.294 | -0.369 | -0.318 | -0.442 | -0.255 | -0.21 |
| 0.462 | 1.014 | 0.962 | 0.809 | 0.585 | C.289 | 0.020 | -0.259 | -0.437 | -0.526 | -0.491 | -0.432 | -0.360 | -0.34 |
| 0.731 | 0.819 | 0.766 | 0.617 | 0.399 | 0.100 | -0.165 | -0.466 | -0.587 | -0.692 | -0.637 | -0.588 | -0.486 | -0.4 |
| 0.980 | 0.602 | 0.553 | 0.410 | 0.203 | -C.074 | -0.325 | -0.570 | -0.741 | -0.838 | -7.778 | -0.723 | -0.570 | -0.5 |
| 1.235 | 0.409 | 0.367 | 0.221 | 0.027 | -0.235 | -0.472 | -0.702 | -0.666 | -0.963 | -0.914 | -C.799 | -0.639 | -0.6 |
| 1.500 | 0.248 | 0.201 | 0.068 | -0.120 | -C.375 | -0.597 | -0.810 | -0.968 | -1.046 | -1.005 | -0.736 | -0.594 | -0.5 |
| 1.944 | 0.290 | 0.242 | 0.104 | -0.093 | -C.378 | -0.600 | -0.845 | -1.013 | -1.011 | -0.907 | -0.636 | -0.346 | -0.1 |
| 2.444 | 0.250 | 0.225 | 0.080 | -0.135 | -0.423 | -0.674 | -0.901 | -C.786 | -0.751 | -0.917 | -0.505 | -0.329 | -C.1 |
| 2.944 | 0.243 | 0.191 | 0.047 | -0.180 | -0.458 | -0.708 | -0.395 | -0.675 | -0.577 | -0.893 | -0.448 | -0.25 | -0.2 |
| 3.444 | 0.235 | 0.170 | 0.025 | -0.200 | -0.483 | -0.733 | -0.727 | -0. 91 | -0.518 | -0.539 | -0.667 | -0.475 | -0.3 |
| 3.944 | 0.225 | 0.164 | 0.013 | -0.212 | -0.504 | -0.758 | -0.727 | -0.472 | -0.414 | -0.372 | -0.362 | -C.475 | -0.3 |
| 4.444 | 0.214 | 0.153 | -0.005 | -0.236 | -0.521 | -0.681 | -0.339 | -0.340 | -0.310 | -0.310 | -0.302 | -0.330 | -0.2 |
| 4.944 | 0.208 | 0.149 | -0.008 | -0.243 | -0.524 | -0.517 | -0-207 | -0.196 | -0.220 | -0.237 | -0.264 | -0.262 | -C.2 |
| 9.644 | 0.213 | 0.141 | -0.022 | -0.254 | -0.231 | -0.435 | -0.113 | -0.086 | -0.140 | -0.178 | -0.184 | -0.214 | -C.1 |
| 5.744 | 0.306 | 0.204 | 0.013 | -0.250 | -0.298 | -0.388 | -0.172 | -0.039 | -0.119 | -0.143 | -0-132 | -C-147 | -0.1 |
| 6.444 | 0.331 | 0.280 | 0.132 | -0.057 | -0.308 | -0.406 | -0.257 | -0.141 | -0.143 | -2.112 | -0.094 | -0.102 | -0.0 |
| 6.744 | 0.326 | 0.287 | 0.139 | -0.036 | -0.332 | -0.477 | -0.308 | -C.137 | -0.150 | -0.122 | -0.094 | -0.081 | -0.0 |
| 7.444 | 0.326 | 0.282 | 0.139 | -0.036 | -0.332 | -0.479 | -0.266 | -0.137 | -0.129 | -0.143 | -0-125 | -0.095 | -0.0 |
| 7.744 | 0.313 | 0.268 | 0.127 | -0.064 | -0.325 | -0.454 | -0.210 | -0.116 | -0.116 | -0.133 | -0.128 | -0-119 | -C.C |
| 8.444 | 0.305 | 0.261 | 0.105 | -0.085 | -0.346 | -0.479 | -0.238 | -0.116 | -0.133 | -0.122 | -0.132 | -0.130 | -C.1 |
| 8.944 | 0.307 | 0.259 | 0.106 | -0.096 | -0.298 | -0.548 | -0.228 | -0.137 | -0.126 | -0.129 | -0.118 | -0.123 | -0.1 |
| 9.444 | 0.306 | 0.254 | 0.107 | -0.092 | -0.322 | -0.500 | -0.186 | -0.130 | -0.123 | -0.147 | -0.132 | -0.140 | -0.i |
| 9.744 | 0.293 | 0.242 | 0.101 | -0.078 | -0.346 | -0.441 | -0.196 | -0.134 | -0.116 | -0.140 | -0.140 | -0.137 | -c.1 |
| 10.444 | 0.295 | 0.241 | 0.090 | -0.11C | 0.335 | -0.479 | -0.203 | -0.146 | -0.125 | -2.134 | -0.131 | -0.133 | -0.1 |
| 19.944 | 0.297 | 0.246 | 0.099 | -0.112 | -0.331 | -0.495 | -0.196 | -0.133 | -0.131 | -0.145 | -0.129 | -0.144 | -0.1 |
| 11.444 | 0.288 | 0.237 | 0.097 | -0.107 | -C.340 | -0.483 | -0.199 | -0.137 | -0-136 | -0.156 | -0.154 | -0.160 | -0.1 |
| 11.944 | 0.286 | 0.239 | 0.097 | -0.101 | -C.320 | -C.472 | -0.196 | -0.133 | -0.136 | -0.142 | -0.157 | -0.150 | -0.1 |
| 12.444 | 0.283 | 0.231 | 0.091 | -0.110 | -0.327 | -C.487 | -0.214 | -0.158 | -0.147 | -0.149 | -0.152 | -C-158 | -C.1 |
| 12.744 | 0.288 | 0.241 | 0.096 | -0.110 | -0.327 | -0.487 | -0.219 | -0.148 | -C.134 | -0.163 | -0.145 | -0.156 | -C.1 |
| 13.444 | 0.286 | 0.235 | 0.090 | -0.118 | -0.335 | -0.447 | -0.207 | -0.144 | -0.138 | -0.165 | -0.147 | -0.162 | -C.1 |
| 13.944 | 0.283 | 0.233 | 0.085 | -0.116 | -C.322 | -0.429 | -0.228 | -0.151 | -0.158 | -0.157 | -0.152 | -C.165 | -0.1 |
| 14.444 | 0.287 | 0.234 | 0.087 | -0.112 | -0.320 | -0.435 | -0.230 | -0.153 | -0.163 | -0.158 | -0.151 | -0.165 | -0.1 |
| 14.944 | 0.291 | 0.239 | 0.090 | -0.109 | -0.318 | -0.440 | -0.250 | -0.155 | -0.168 | -0.159 | -0.150 | -0.165 | -0.1 |
| 15.444 | 0.283 | 0.235 | 0.089 | -0.103 | -0.315 | -0.448 | -0.266 | -0.160 | -0.170 | -0.151 | -0.147 | -0.157 | -G-1 |
| 15.944 | 0.284 | 0.233 | 0.092 | -0.094 | -0.326 | -0.447 | -0.282 | -0.164 | -0.172 | -0.157 | -0.152 | -0.164 | -0.1 |
| 16.444 | 0.276 | 0.224 | 0.083 | -0.107 | -0.333 | -0.444 | -0.295 | -0.164 | -0.170 | -0.161 | -0.148 | -0.165 | -0.1 |
| 16.944 | 0.278 | 0.226 | 0.081 | -0.110 | -0.327 | -0.448 | -0.300 | -0-162 | -0.168 | -0.163 | -0.145 | -0.163 | 1.0- |
| 17.444 | 0.282 | 0.233 | 0.090 | -0.110 | -0.322 | -0.444 | -0.293 | -0.158 | -0.161 | -0.157 | -0.150 | -0.156 | -0.1 |
| 17.944 | 0.275 | 0.232 | 0.092 | -0.107 | -C.318 | -0.431 | -0.279 | -0.151 | -0.154 | -0.154 | -0.146 | -0.153 | -0.1 |
| 18.444 | 0.271 | 0.223 | 0.088 | -0.114 | -0.324 | -C.421 | -0.257 | -0.139 | -0.145 | -7-147 | -0.119 | -0.144 | -0.1 |
| 18.944 | 0.278 | 0.226 | 0.091 | -0.114 | -C.313 | -0.405 | -0.221 | -3.124 | -0.127 | -0.131 | -0.103 | -0.129 | -0.1 |
| 19.444 | 0.285 | 0.233 | 0.091 | -0.101 | -0.291 | -0.390 | -0.196 | -0.106 | -0.113 | -0.120 | -0.103 | -C.119 | -0.1 |
| 19.944 | 0.300 | 0.248 | 0.103 | -C.107 | -0.307 | -0.383 | -0.207 | -0.695 | -0.095 | -0.104 | -0.101 | -0.099 | -0.0 |
| 20.444 | 0.320 | 0.268 | 0.133 | -0.080 | -0.268 | -C.372 | -0.164 | -0.074 | -0.063 | -0.072 | -0.069 | -0.074 | -0.0 |
| 20.944 | 0.319 | 0.276 | 0.147 | -0.035 | -0.243 | -0.291 | -0.124 | -0.030 | -0.041 | -0.046 | -C.651 | -0.048 | -C.0 |
| 21.444 | 0.311 | 0.264 | 0.145 | -0.026 | -0.216 | -0.284 | -0.081 | 0.005 | 0.007 | -0.002 | -0.009 | 0.002 | 0.2 |

Table 1.43 Experimental pressure coefficients c_p for $\alpha = 30^{\circ}$, $M_{\infty} = 1.1$ and $Re_D = 6.2 \cdot 10^{5}$

| | | | | | | Р | | | ∞ | | Ъ | | |
|-------------|-------|-------|-------|--------|--------|--------|----------|--------|----------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar | angle, Φ | , deg. | | | | | |
| ¥/0 | o | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.274 | 0.544 | 0.470 | 0.304 | 0.002 | 0.290 | -0.121 | -0.147 | -0.218 | -0.173 | -0.124 | -0.160 | -0.10 |
| 0.482 | 1.074 | 1.027 | 0.882 | 0.670 | 0.411 | 0.139 | -0.111 | -0.287 | -0.367 | -0.335 | -0.283 | -0.215 | -0.20 |
| 0.731 | 0.884 | 0.836 | 0.696 | 0.490 | 0.241 | -0.033 | -0.251 | -0.423 | -0.510 | -0.474 | -0.426 | -0.331 | -0.2 |
| 0.780 | 0.674 | 0.629 | 0.495 | 0.300 | 0.065 | -0.186 | -0.407 | -C.559 | -0.656 | -0.604 | -0.553 | -0.413 | -0.3 |
| 1.238 | 0.426 | 0-443 | 0.313 | 0.128 | -0.093 | -0.323 | -0.531 | -3.680 | -0.770 | -0.724 | -0.650 | -0.464 | -0.4 |
| 1.500 | 0.326 | 0.293 | 0.160 | -0.014 | -0.223 | -0.443 | -0.631 | -0.774 | -0.851 | -0.805 | -0.605 | -C.448 | -0.4 |
| 1.944 | 0.373 | 0.326 | 0.201 | 0.012 | -0.217 | -0.456 | -0.660 | -0.816 | -0.828 | -0.702 | -0.520 | -0.250 | -C.C |
| 2.444 | 0.355 | 0.300 | 0.190 | -0.015 | -C.250 | -0.511 | -0.712 | -0.676 | -0.611 | -0.737 | -0.790 | -0.241 | -0.0 |
| 2.944 | 0.323 | 0.276 | 0.147 | -0.060 | -C.286 | -0.544 | -0.645 | -0.550 | -0.465 | -0.808 | -0.641 | -0.160 | -0.1 |
| 3.444 | 0.315 | 0.260 | 0-128 | -0.080 | -0.310 | -0.566 | -0.612 | -0.465 | -0.426 | -0.520 | -0.576 | -0.409 | -0.2 |
| 3.944 | 0.304 | 0.250 | 0.109 | -0.093 | -0.338 | -0.589 | -0.612 | -0.430 | -0.406 | -0.370 | -0.352 | -0.409 | -0.2 |
| 4.444 | 0.294 | 0.236 | 0.095 | -0.112 | -0.354 | -0.609 | -0.400 | -0.407 | -0.371 | -0.332 | -0.322 | -0.364 | -0.34 |
| 4.745 | 0.287 | 0.229 | 0.092 | -0.122 | -0.367 | -0.622 | -0.339 | -0.345 | -0.364 | -0.341 | -0.322 | -0.338 | -0.3 |
| 5.444 | 0.273 | 0.224 | 0.076 | -0.132 | -0.377 | -0.615 | -0.293 | -0.293 | -0.325 | -0.338 | -0.313 | -0.315 | -0.2 |
| 5.744 | 0.274 | 0.215 | 0.070 | -0.138 | -0.384 | -0.586 | -0.251 | -0.264 | -0.283 | -0.299 | -0.30C | -0.296 | -0.2 |
| 6.444 | 0.273 | C.214 | 0.066 | -0.142 | -C.387 | -0.576 | -0.231 | -0.219 | -0.244 | -0.254 | -0.254 | -0.254 | -0.2 |
| 6.944 | 0.268 | 0.211 | 0.062 | -0.145 | -0.335 | -0.565 | -0.264 | -0.186 | -0.202 | -0.208 | -0.212 | -0.215 | -0.1 |
| 7.444 | 0.268 | 0.211 | 0.062 | -0.145 | -0.335 | -0.564 | -0.274 | -0.186 | -0.163 | -0.170 | -0.186 | -0.189 | -0.1 |
| 7.944 | 0.303 | 0.235 | 0.100 | -0.096 | -C.331 | -0.563 | -0.254 | -0.202 | -0.182 | -0.176 | -0.166 | -0.169 | -0.1 |
| 8-444 | 0.297 | 0.241 | 0.093 | -0.106 | -0.351 | -0.586 | -0.238 | -C.202 | -0.231 | -0.159 | -0.179 | -0.179 | -0.1 |
| 8.744 | 0.280 | 0.238 | 0.105 | -0.099 | -0.348 | -0.589 | -0.218 | -0.215 | -0.208 | -0.215 | -0.202 | -0.195 | -0.1 |
| 9.444 | 0.271 | 0.220 | 0.088 | -0.116 | -0.344 | -0.569 | -0.215 | -0.199 | -0.173 | -0.199 | -0.202 | -0.215 | -0.I |
| 9.944 | 0.289 | 0.227 | 0.085 | -0.102 | -0.282 | -0.553 | -0-209 | -0.160 | -0.153 | -0.173 | -0.176 | -0.179 | -0.1 |
| 10.444 | 0.285 | 0.239 | 0.103 | -0.084 | -0.298 | -0.548 | -0.089 | -0.169 | -0.142 | -0.154 | -0.157 | -0.167 | -C.1 |
| 10.944 | 0.285 | 0.240 | 0.112 | -0.088 | -0.317 | -0.529 | -0.184 | -0.151 | -0.147 | -0.165 | -0.156 | -0.177 | -0.1 |
| 11.444 | 0.269 | 0.227 | 0.094 | -0.108 | -0.335 | -0.529 | -0.188 | -0.161 | -0.157 | -0-170 | -0.179 | -0.190 | -0.1 |
| 11.944 | 0.259 | 0.213 | 0.083 | -0.123 | -0.352 | -0.519 | -0.184 | -0.146 | -0.147 | -0.154 | -0.177 | -0.179 | -0.1 |
| 12.444 | 0.244 | 0.196 | 0.060 | -0.145 | -0.362 | -0.469 | -0.166 | -0.136 | -0.135 | -0.150 | -0.169 | -0.169 | -0.1 |
| 12.944 | 0.252 | 0.196 | 0.058 | -0.145 | -0.359 | -0.380 | -0.141 | -0.126 | -C.127 | -0.154 | -0.157 | -0.164 | -C.1 |
| 13.444 | 0.261 | 0.204 | 0.062 | -C.138 | -0.337 | -0.315 | -0.162 | -0.139 | -0.134 | -0.152 | -0.156 | -0.167 | -0.1 |
| 13.944 | 0.259 | 0.209 | 0.072 | -0.121 | -0.295 | -C.420 | -0.189 | -0.149 | -0.122 | -0.100 | -C.134 | -0.132 | -C.1 |
| 14.444 | 0.294 | 0.236 | 0.089 | -0.095 | -0.280 | -0.385 | -0.195 | -0.126 | -0.115 | -0.102 | -0-120 | -0.110 | -0.1 |
| 14.944 | 0.328 | 0.267 | 0.106 | -0.069 | -0.265 | -0.350 | -0.134 | -0.102 | -0.107 | -0.104 | -0.105 | -0.107 | -0.0 |
| 15.444 | 0.324 | 0.284 | 0.142 | -0.047 | -0.255 | -0.358 | -0.157 | -0.100 | -0.105 | -0.109 | -0.114 | -0.122 | -0.1 |
| 15.944 | 0.327 | 0.280 | 0.142 | -0.054 | -C.255 | -0.370 | -0.177 | -0.121 | -0.125 | -0.124 | -0.125 | -0.135 | -0.1 |
| 16.444 | 0.326 | 0.277 | 0.130 | -0.063 | -0.244 | -0.384 | -0.236 | -0.149 | -0.147 | -0.147 | -0.14I | -0.147 | -0.1 |
| 16.944 | 0.311 | 0.276 | 0.137 | -0.046 | -0.260 | -0.412 | -0.271 | -0.179 | -0.165 | -0.154 | -0-142 | -0.149 | -0.1 |
| 17.444 | 0.304 | 0.260 | 0.132 | -0.054 | -0.261 | -0.479 | -0.288 | -0.177 | -0.172 | -0.166 | -0.141 | -0.144 | -0.1 |
| 17.944 | 0.317 | 0.271 | 0.134 | -0.056 | -C.268 | -0.507 | -0.248 | -0.177 | -0.184 | -0.179 | -C.159 | -0.154 | -0.1 |
| 18.444 | 0.306 | 0.262 | 0.125 | -0.066 | -0.290 | -0.516 | -0.246 | -0.174 | -C.185 | -0.189 | -0.157 | -0.169 | -0.1 |
| 18.744 | 0.303 | 0.263 | 0.131 | -0.069 | -0.303 | -0.496 | -0.237 | -0.166 | -0.179 | -0.189 | -0.156 | -0.179 | -0.1 |
| 19.444 | 0.285 | 0.257 | 0.126 | -0.069 | -0.302 | -0.492 | -0.229 | -0.166 | -0.177 | -0.192 | -0.172 | -0.189 | -0.1 |
| 19.944 | 0.274 | 0.241 | 0.109 | -0.093 | -0.312 | -0.497 | -0.239 | -0.174 | -0.177 | -0.189 | -0.196 | -0.190 | -0.1 |
| 20.444 | 0.252 | 0.235 | 0.097 | -0.096 | -C.310 | -0.494 | -0.243 | -0.174 | -0.169 | -0.174 | -0.191 | -0.174 | -0.1 |
| 20.744 | 0.238 | 0.194 | 0.067 | -0.125 | -0.339 | -0.475 | -0.191 | -C.142 | -0.140 | -0.139 | -0.152 | -0.130 | -0.1 |
| 21.444 | 0.229 | 0.178 | 0.043 | -0.155 | -C.366 | -0.447 | -0.127 | -0.084 | -0.067 | -0.058 | -0.074 | -0.035 | 0.19 |

Table 1.44 Experimental pressure coefficients c_p for α = 30°, M_{∞} = 1.2 and Re_D = 6.3 · 10⁵

| | | | | | | þ | | | ω | | D | | |
|-------------|-------|--------|-------|--------|--------|---------|----------|--------|--------|--------|--------|--------|-------|
| Coordinates | | | | | | Polar a | ngle, Φ, | deg. | | | | | |
| X/D | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| 0.251 | 0.065 | 0.600 | 0.528 | 0.353 | 0.066 | 0.365 | -0.194 | -0.067 | -0.147 | -0.110 | -0.058 | -0-135 | -0.07 |
| 0.482 | 1.117 | 1.072 | 0.930 | 0.726 | C.473 | 0.211 | -0.039 | -0.207 | -0.295 | -0.268 | -0.212 | -0-147 | -C.13 |
| 0.731 | 0.926 | 0.880 | 0.743 | 0.546 | 0.305 | 0.043 | -0.170 | -0.334 | -0.431 | -0.401 | -0.354 | -0.268 | -0.24 |
| 0.980 | 0.715 | 0.672 | 0.542 | 0.358 | 0.131 | -0.104 | -0.312 | -0.467 | -0.564 | -0.524 | -0.472 | -0.348 | -0.32 |
| 1.238 | C.525 | 0.485 | 0.358 | 0.185 | -0.024 | -0.241 | -0.434 | -0.576 | -0.669 | -0.639 | -0.561 | -0.423 | -0.40 |
| 1.500 | 9.352 | 0.312 | 0.197 | 0.034 | -C.155 | -0.352 | -0.524 | -0.650 | -0.743 | -0.710 | -0.617 | -0.407 | -0.38 |
| 1.944 | 0.401 | C.33A | 0.237 | 0.063 | -C.149 | -0.368 | -0.548 | -0.687 | -0.719 | -3.563 | -0.514 | -C.263 | -0.12 |
| 2.444 | 0.375 | 0.335 | 0.220 | 0.045 | -0.155 | -0.414 | -0.595 | -0.616 | -0.555 | -0.642 | -0.778 | -0.268 | -0.09 |
| 2.444 | 0.347 | 0.302 | 0.188 | 0.004 | -C.211 | -0.445 | -0.555 | -0.411 | -0.437 | -0.698 | -0.611 | -0.135 | -0.01 |
| 3.444 | 0.335 | 0.290 | 0.165 | -0.025 | -0.240 | -0.461 | -0.545 | -0.363 | -0.397 | -0.494 | -0.487 | -0.437 | -0.28 |
| 3.944 | 0.333 | 0.284 | 0.145 | -0.036 | -0.258 | -0.483 | -0.545 | -0.475 | -0.362 | -0.354 | -0.317 | -0.407 | -0.28 |
| 4.444 | 0.336 | 0.284 | 0.144 | -0.043 | -C.267 | -0.495 | -0.384 | -0.374 | -0.357 | -0.314 | -0.293 | -0.305 | -0.31 |
| 4.944 | 0.317 | 0.230 | 0.146 | -0.049 | -0.273 | -C.510 | -0.316 | -0.318 | -0.329 | -0.311 | -0.293 | -0.277 | -0.25 |
| 3.444 | 0.318 | 0.261 | 0.118 | -0.071 | -0.292 | -0.511 | -0.281 | -0.265 | -0.289 | -0.302 | -0.299 | -0.284 | -0.24 |
| 5.944 | 0.306 | C. 262 | 0.116 | -0.068 | -0.292 | -0.517 | -0.260 | -0.262 | -0.261 | -0.277 | -0.296 | -0.290 | -0.29 |
| 6.444 | 0.302 | 0.250 | 0.116 | -0.071 | -0.298 | -0.514 | -0.235 | -0.219 | -0.243 | -0.252 | -0.259 | -9.256 | -0.23 |
| 6.944 | 0.300 | 0.254 | 0.109 | -0.C74 | -0.299 | -0.510 | -0.213 | -0.2/3 | -0.212 | -0.218 | -0.249 | -0.237 | -0.21 |
| 7.444 | 0.300 | 0.254 | 0.109 | -0.074 | -0.299 | -0.510 | -0.194 | -C.263 | -0.199 | -0.209 | -0.215 | -0.225 | -0.19 |
| 7.944 | 0.291 | 0.254 | 0.105 | -0.083 | -0.314 | -0.476 | -0.191 | -0.162 | -0.199 | -0.202 | -0.206 | -0.203 | -0.1 |
| 8.444 | 0.237 | 0.247 | 0.106 | -0.083 | -0.280 | -0.467 | -0.238 | -0.152 | -0.181 | -0.191 | -0.200 | -0.182 | -0.1 |
| 3.944 | 0.303 | 0.254 | 0.599 | -0.092 | -0.283 | -0.473 | -0.263 | -0.106 | -0.162 | -0.178 | -C.135 | -0.175 | -0.1 |
| 9.444 | 0.302 | 0.252 | 0.119 | -0.052 | -0.270 | -C.483 | -0.275 | -0.219 | -C.169 | -0.169 | -0.175 | -0.185 | -0-16 |
| 9.944 | 0.303 | 0.267 | 0.130 | -0.049 | -0.267 | -0.498 | -0.253 | -0.219 | -0.196 | -0.181 | -0.163 | -0.166 | -0.1 |
| 13.444 | 0.310 | 0.270 | 0.131 | -0.751 | -0.276 | -0.492 | -0-199 | -0.273 | -0.246 | -0.224 | -0.187 | -0.163 | -0.1 |
| 10.744 | 0.312 | 0.261 | 0.125 | -0.057 | -0.276 | -0.482 | -0.172 | -0.1.3 | -C.196 | -0.240 | -C.214 | -0.199 | -0.1 |
| 11.444 | 0.286 | 0.243 | 0.107 | -0.080 | -0.298 | -0.450 | -0.150 | -0.172 | -0.185 | -0.211 | -0.243 | -0.224 | -0.1 |
| 11.944 | 0.305 | 0.260 | 0.121 | -0.070 | -0.293 | -0.417 | -0.142 | -0.124 | -0.132 | -0.164 | -0.202 | -0.189 | -0-1 |
| 12.444 | 0.304 | 0.255 | 0.115 | -0.074 | -0.281 | -0.375 | -0.134 | -0.116 | -0.119 | -0.148 | -0.162 | -0.173 | -C.1 |
| 12.944 | 0.319 | 0.269 | 0.132 | -0.056 | -C.255 | -0.382 | -0.153 | -0.124 | -0.111 | -0.148 | -0.151 | -C.159 | -0.14 |
| 13.444 | 0.297 | 0.266 | 0.128 | -0.056 | -0.265 | -C.377 | -0.139 | -0.124 | -0.120 | -0.140 | -0.140 | -0.146 | -0.14 |
| 13.944 | 0.309 | 0.258 | 0.129 | -0.049 | -0.265 | -0.394 | -0.160 | -0.150 | -3.144 | -0.149 | -0.146 | -0.159 | -C.1 |
| 14.444 | 0.318 | 0.272 | 0.140 | -0.038 | -0.256 | -0.430 | -0.200 | -0.178 | -0.172 | -0.169 | -0.158 | -0.160 | -C.1 |
| 14.944 | 0.326 | 0.237 | 0.152 | -0.027 | -0.247 | -C.466 | -0.252 | -0.2.6 | -0.200 | -0.189 | -0.170 | -0.167 | -0.10 |
| 15.444 | 0.318 | 0.285 | 0.144 | -0.046 | -0.257 | -C.485 | -0.268 | -0.234 | -0.235 | -0.224 | -0.162 | -0-169 | -0.19 |
| 15.944 | 0.281 | 0.251 | 0.116 | -0.064 | -0.761 | -0.439 | -0.247 | -0.226 | -0.248 | -0.250 | -0.202 | -C.234 | -0.1 |
| 16.444 | 0.292 | 0.230 | 0.101 | -0.072 | -0.271 | -0.351 | -0.198 | -0.191 | -0.203 | -0.216 | -0.226 | -0.208 | -C.1 |
| 16.944 | 0.295 | 0.241 | 0.108 | -0.077 | -0.286 | -0.318 | -0.164 | -0.129 | -0.157 | -0.165 | -0.192 | -0-197 | -0.1 |
| 17.444 | 0.279 | 0.245 | 0.109 | -0.075 | -0.287 | -0.295 | -0.151 | -0.140 | -0.173 | -0.162 | -0.197 | -0.204 | -0.20 |
| 17.944 | 0.292 | 0.251 | 0.128 | -0.056 | -0.268 | -0.357 | -0.212 | -0.159 | -0.173 | -0.164 | -0.189 | -0.186 | -0.19 |
| 18.444 | 0.273 | 0.219 | 0.085 | -0.096 | -0.305 | -C-437 | -0.259 | -0.174 | -0.176 | -0.162 | -0.165 | -0-173 | -0.1 |
| 18.944 | 0.283 | 0.243 | 0.109 | -0.069 | -0.263 | -0.458 | -0.270 | -0.193 | -0.213 | -0.186 | -0.146 | -0.165 | -0.1 |
| 19.444 | 0.308 | 0.283 | 0.155 | -0.019 | -0.230 | -0.476 | -0.275 | -0.264 | -0.213 | -0.196 | -0.159 | -0.180 | -0.1 |
| 19.944 | 0.282 | 0.238 | 0.104 | -C.075 | -0.281 | -0.474 | -0.238 | -0.2.4 | -0.209 | -0.204 | -0.196 | -0.205 | -0.1 |
| 20.444 | 0.265 | 0.237 | 0.091 | -0.083 | -0.291 | -0.453 | -0.206 | -0.190 | -0.194 | -0.213 | -0.243 | -0.212 | -0.19 |
| 20.944 | 0.274 | 0.247 | 0.120 | -0.059 | -0.278 | -0.444 | -0.179 | -0.150 | -0.143 | -0.173 | -0.210 | -0.175 | -0.1 |
| 21.444 | 0.295 | 0.251 | 0.117 | -0.074 | -0.287 | -0.413 | -0.156 | -2.135 | -0.120 | -0.132 | -0.167 | -0.116 | -0.0 |

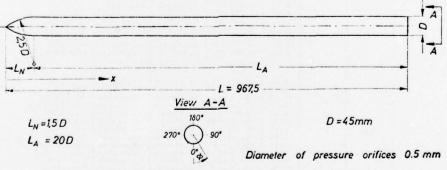
 $\frac{\text{Table 1.45}}{\text{and base pressure coefficients. Continued.}}$

| M _∞ | Rep : 10 5 | α[°] | CN | Cm | CA | Срв |
|----------------|------------|---|---|--|--|--|
| 0.5 | 4.1 | -4.09 -2.34 -1.31 -0.56 0.01 0.52 1.03 2.06 4.11 6.17 8.24 | 0.266188 0.921813 0.927462 0.063432 -0.02423 -0.076241 -0.122431 -0.258115 -0.421294 -0.4616865 | -1.169099 -0.532010 -0.204207 -0.102677 0.236303 0.399688 0.717666 1.405656 2.015942 2.741194 | -0.376733 -0.353991 -0.346691 -0.346691 -0.355519 -0.352741 -0.354329 -0.364978 -0.467352 -0.467352 | -0.109921 -0.09264 -0.08763 -0.08778 -0.08978 -0.08978 -0.09208 -0.10992 -0.12531 -0.14117 |
| 0.7 | 5.2 | -4.16 -2.07 -1.03 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 -0.01 | -1.131036 -1.429215 -3.017570 -3.017570 -3.017570 -3.017570 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 -3.017187 | -1.224364 -0.092468 -1.224364 -0.544705 -0.28631 -0.061814 -0.061766 0.250114 0.391075 0.715252 1.315706 2.3770992 | -0.425871 -0.361632 -0.347957 -0.347957 -0.346925 -0.343157 -0.343207 -0.343485 -0.345551 -0.352219 -0.383462 -0.383462 | -0.17357 -0.21336 -0.58777 -0.110844 -0.91556 -0.09303 -0.083906 -0.09337 -0.09337 -0.107843 -0.127324 |
| 0.8 | 5.6 | 12.72 17.06 0.01 -4.20 -2.39 -1.04 -0.51 0.01 0.53 1.06 2.11 4.22 6.35 8.50 | -3.626951 -1.192703 -1.870858 -3.007638 -3.102183 0.346924 0.020245 -0.03662 -3.031551 -0.358271 -0.115051 -0.253365 -0.4277977 -0.643296 | 2.849541 4.437419 6.089632 0.091079 -1.214491 -3.545536 -0.226844 -0.077722 0.225607 0.400141 0.704062 1.386158 2.304426 2.869597 | -0.419063 -0.417336 -0.476442 -0.342660 -0.376944 -0.352035 -0.346483 -0.346179 -0.345777 -0.347088 -0.348230 -0.365482 -0.383788 -0.46387 | -0.142233 -0.18313 -0.193275 -0.088694 -0.105156 -0.105156 -0.105156 -0.105156 -0.105347 -0.105347 -0.123456 -0.145587 |
| 0.9 | 5.9 | 12.88 17.35 0.31 -4.23 -2.10 -1.35 -0.52 0.01 0.53 1.37 2.12 4.25 6.41 8.58 13.04 17.61 | -1.233683 -2.307566 -3.003609 | 4.528792 6.445725 0.371384 -1.211722 -3.564361 -0.248651 -0.072510 0.666956 0.215725 0.386981 0.660966 1.355987 2.374732 2.840806 4.619712 6.594131 | -C.424947 -C.428194 -G.345610 -C.392799 -C.3572867 -C.357284 -O.356423 -O.356423 -O.356564 -C.396566 -C.420346 -J.420346 -J.436212 -C.448297 -C.444206 | -0.19228' -0.2101298' -0.130046' -0.107617' -0.1067617' -0.106164' -0.108698' -0.130373' -0.1644' -0.108698' -0.1208698' -0.1208698' -0.1208698' -0.1208698' -0.1208698' -0.1208698' -0.1208698' -0.1208698' |
| 0.95 | 6.0 | -4.25 -2.11 -1.05 -0.52 C.01 C.54 1.07 2.13 4.27 6.44 8.64 13.15 17.83 0.01 | -0.004470 0.258477 0.116739 0.057460 0.026753 0.01137 -0.025952 -0.055139 -0.118692 -0.262948 -0.463614 -1.337462 -2.253474 0.001092 | 0.071425 -1.190104 -0.519823 -0.198662 -0.031799 9.105246 0.259263 0.413373 0.739046 1.410029 2.154644 2.957633 4.884258 7.356373 0.101447 | -0.359111 -0.451433 -0.451433 -0.416195 -0.416792 -0.416416 -0.417842 -0.458203 -0.462850 -0.525875 -0.525875 -0.514791 -0.415030 | -0.105628 -0.13995 -0.11847 -0.11342 -0.11363 -0.11363 -0.12035 -0.16229 -0.16218 -0.1773 -0.21772 -0.21553 -0.11295 |
| 1.0 | 6.1 | -4.27 -2.12 -1.05 -C.52 0.01 0.54 1.07 2.13 4.28 6.48 8.70 13.24 18.03 | 0.274307 0.127796 0.064841 0.032379 -0.0202379 -0.06085 -0.124715 -0.260829 -0.474220 -0.716556 -1.374322 -2.346746 | -1.208779 -C.477374 -0.198683 -0.0555068 -0.0555068 0.206445 0.232566 0.366167 0.664769 1.359870 2.181377 3.118226 5.125033 7.784025 | -C.565377 -C.531112 -O.521497 -O.51996 -C.5508735 -O.508228 -O.526504 -O.525587 -O.564080 -C.606847 -O.635495 -O.647081 -O.638739 -O.517161 | -C.1899) -C.16371 -C.15379 -C.15267 -C.16373 -C.154593 -C.15793 -C.15793 -C.21736 -C.21736 -C.21736 -C.21736 -C.21736 -C.21736 -C.21736 -C.21736 -C.21736 |

Table 1.45 Concluded

| Moo | Rep. 10 | a[0] | CN | C _{in} | CA | CpB |
|------|---------|----------------|-----------|-----------------|-----------|----------|
| | | | | | | |
| | 1 | -4.29 | 0.275399 | -1.338653 | -C.677240 | -0.23705 |
| | 1 | -2.12 | 0.133000 | -0.507411 | -0.625928 | -0.19780 |
| | | -1.36 | 0.065646 | -0.195466 | -0.616079 | -0.18653 |
| | | -0.52 | 0.031261 | -0.056943 | -0.621176 | -C.19313 |
| | | 0.01 | -0.000832 | 0.069905 | -0.623980 | -0.19535 |
| 1.05 | | 6.54 | -0.035145 | 0.208711 | -0.626282 | -0.19314 |
| 1.05 | 6.2 | 1.07 | -0.067227 | 0.343418 | -0.628413 | -0.20026 |
| | 1 | 2.15 | -0.134996 | 0.667542 | -0.641888 | -0.21073 |
| | 1 | 4.31 | -0.281203 | 1.476795 | -0.671814 | -0.23320 |
| | | 6.51 | -0.476774 | 2.338841 | -0.711540 | -0.26221 |
| | | 6.77 | -0.729312 | 3.421954 | -0.717600 | -0.25023 |
| | | 13.39 | -1.437805 | 5.690879 | -0.729402 | -0.28396 |
| | 1 | 18.27 | -2.458763 | 8.337719 | -C.724338 | -0.30442 |
| | | 3.01 | 0.000177 | 0.073829 | -0.621610 | -0.19409 |
| | | -4.30 | 0.275711 | -1.342815 | -0.740618 | -0.27454 |
| | | -2.13 | 0.131364 | -0.525921 | -0.765639 | -0.24787 |
| | | -1.06 | 0.066574 | -0.176465 | -0.695542 | -0.24058 |
| | 1 | -6.52 | 0.035046 | -0.025543 | -0.694079 | -0.23897 |
| | | 0.31 | 0.053646 | 0.117996 | -0.694148 | -0.23998 |
| | | 0.55 | -0.327806 | 0.280402 | -0.693270 | -0.23895 |
| 1.1 | 6.3 | 1.08 | -0.059261 | 0.444635 | -0.696337 | -0.24107 |
| 1. 1 | 0.3 | 2.16 | -0.125178 | 0.784775 | -0.707187 | -0.24941 |
| | | 4.34 | -0.276322 | 1.603051 | -0.743226 | -0.27542 |
| | | 6.55 | -0.474476 | 2.514315 | -0.772670 | -0.29434 |
| | | 0.50 | -0.729354 | 3.482094 | -0.799365 | -0.30765 |
| | | 13.45 | -1.441085 | 5.804121 | -C.789726 | -0.32503 |
| | | 18.43 | -2.555811 | 9.183963 | -0.787591 | -0.34698 |
| | | 0.01 | 0.004749 | 0.116167 | -0.685473 | -0.23468 |
| | | | | -1.479808 | -3.752892 | -0.24784 |
| | | -4.34 -2.15 | 0.275249 | -3.646294 | -0.719312 | -0.21396 |
| | | -1.07 | | -0.281679 | -0.711848 | -0.20635 |
| | | -0.53 | 0.061057 | -0.110165 | -0.713933 | -0.2055 |
| | | 0.01 | -0.000599 | 0.053296 | -0.710395 | -0.20594 |
| | | 0.55 | | 0.0332467 | -0.711836 | -0.20616 |
| 1.2 | 6.3 | 1.09 | -0.331998 | 0.414459 | -0.713624 | -0.20747 |
| | 6.3 | 2.17 | -0.128360 | 0.414459 | -0.725229 | -2.21651 |
| | | 4.37 | -0.128965 | 1.699645 | -0.761528 | -0.24387 |
| | | 6.60 | -0.219316 | 2.626107 | -0.787777 | -0.26:32 |
| | | 8.87 | -0.751931 | 3.669907 | -0.806235 | -0.27683 |
| | | 13.60 | -1.521207 | 6.125628 | -0.823618 | -0.30392 |
| | | 18.87 | -2.806717 | 10.633547 | -0.813040 | -2.32255 |
| | | 0.00 | -0.001317 | 0.028734 | -0.709105 | -0.20687 |

Figure 1.1 Body geometry and coordinates of pressure orifices



Coordinates of pressure orifices (constant Φ)

| Nr. | x[r.nm] | X D | Nr. | x[mm] | X D | Nr. | x[rnm] | $\frac{\mathbf{x}}{D}$ | Nr. | x[mm] | X D |
|-----|---------|--------|-----|-------|--------|-----|--------|------------------------|-----|-------|--------|
| 1 | 11.25 | 0.251 | 13 | 222.5 | 4,944 | 25 | 492.5 | 10,944 | 37 | 762,5 | 16,944 |
| 2 | 21.74 | 0.462 | 14 | 245.0 | 5,444 | 26 | 515.0 | 11,444 | 38 | 785,0 | 17,444 |
| 3 | 32.94 | 0.731 | 15 | 267.5 | 5,944 | 27 | 537.5 | 11,944 | 39 | 807.5 | 17,944 |
| 4 | 44.11 | 0.980 | 16 | 290,0 | 6,444 | 28 | 560.0 | 12,444 | 40 | 830.0 | 18,444 |
| 5 | 55.74 | 1,238 | 17 | 312,5 | 6,944 | 29 | 582.5 | 12,944 | 41 | 852.5 | 18,944 |
| 6 | 62.50 | 1,500 | 18 | 335.0 | 7.444 | 30 | 605,0 | 13,444 | 42 | 875.0 | 19.444 |
| 7 | 87.50 | 1.944 | 19 | 357.5 | 7,944 | 31 | 627.5 | 13,944 | 43 | 897,5 | 19,944 |
| 8 | 110.0 | 2.444 | 20 | 380.0 | 8.444 | 32 | 650,0 | 14,444 | 44 | 920.0 | 20,444 |
| 9 | 132.5 | 2.944 | 21 | 4025 | 8.944 | 33 | 672,5 | 14,944 | 45 | 942.5 | 20,944 |
| 10 | 155.0 | 3.444 | 22 | 425.0 | 9.444 | 34 | 695.0 | 15.444 | 46 | 965,0 | 21.444 |
| 11 | 177.5 | 3.944 | 23 | 4475 | 9,944 | 35 | 717,5 | 15,944 | | | |
| 12 | 200,0 | 4.41.4 | 24 | 470,0 | 10.444 | 36 | 740,0 | 16,444 | | | |

Figure 1.2 Model supports I and II

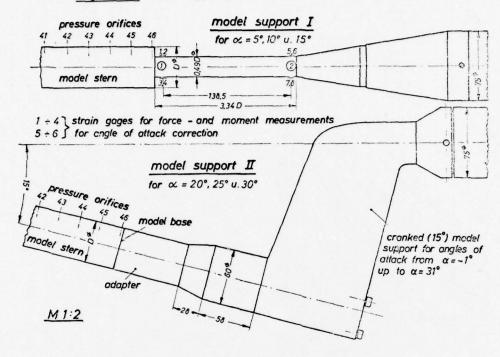


Figure 1.3 Reflection pattern of model head waves

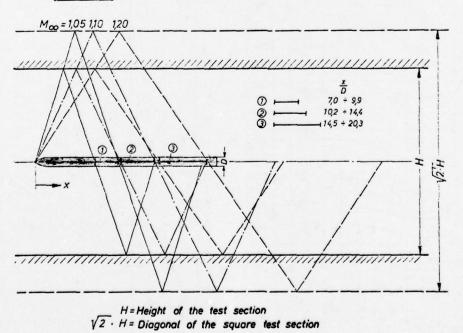


Figure 1.4 Normal-force coefficients

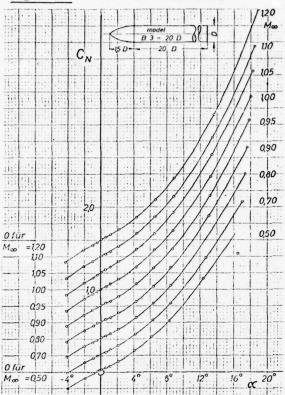


Figure 1.5 Pitching-moment coefficients

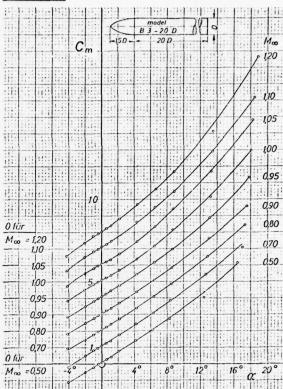


Figure 1.6 Axial-force coefficients

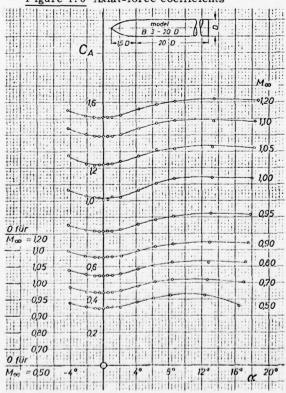
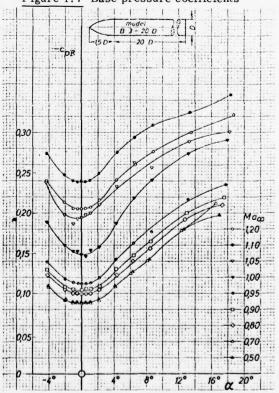


Figure 1.7 Base pressure coefficients



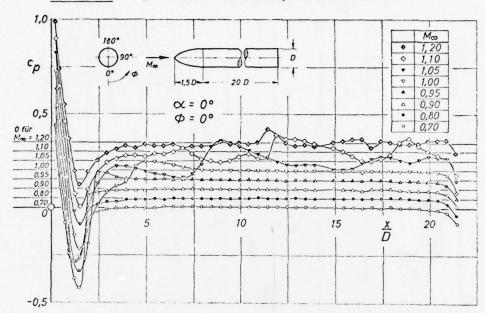
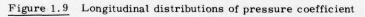
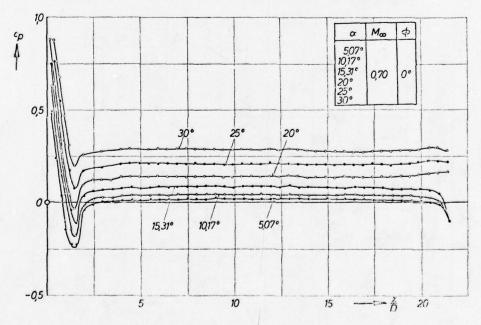


Figure 1.8 Longitudinal distributions of pressure coefficient





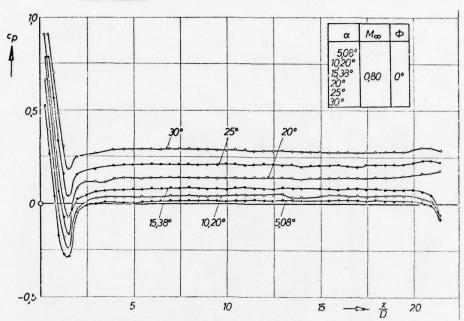
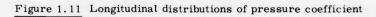


Figure 1.10 Longitudinal distributions of pressure coefficients



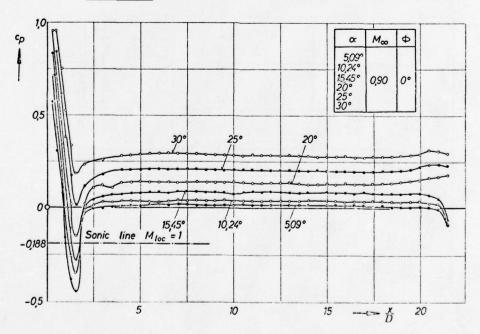


Figure 1.12 Longitudinal distributions of pressure coefficient

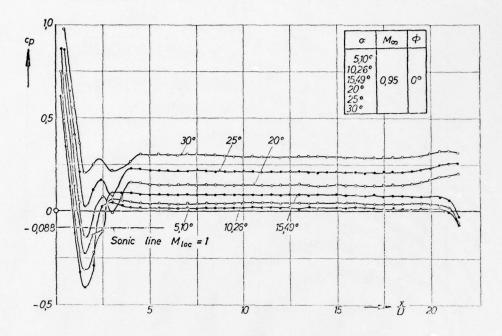


Figure 1.13 Longitudinal distributions of pressure coefficient

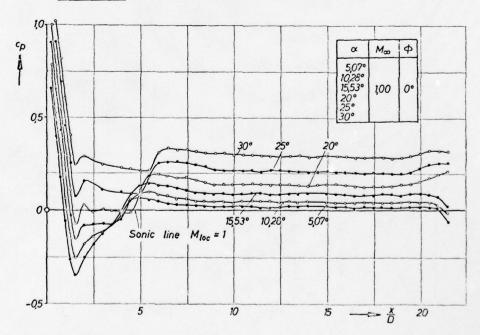


Figure 1.14 Longitudinal distributions of pressure coefficient

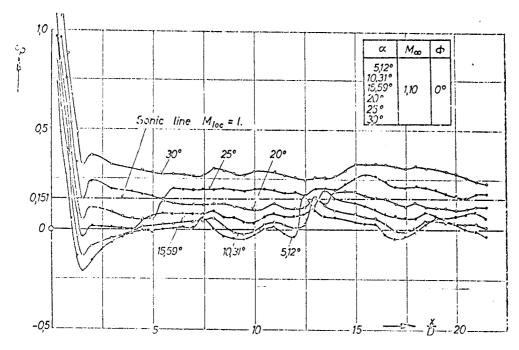


Figure 1.15 Longitudinal distributions of pressure coefficient

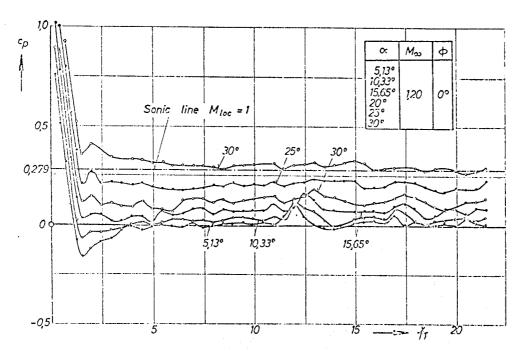


Figure 1.16 Oil flow picture for M $_{\infty}$ = 0.7, Re $_{D}$ = 5.7 \cdot 10 5 , α = 25 o

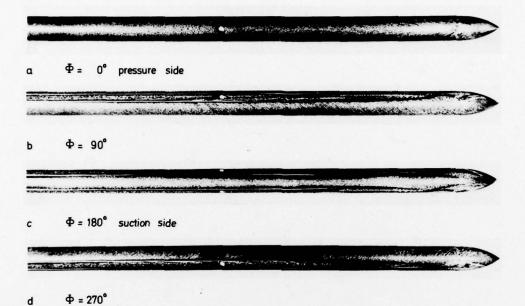
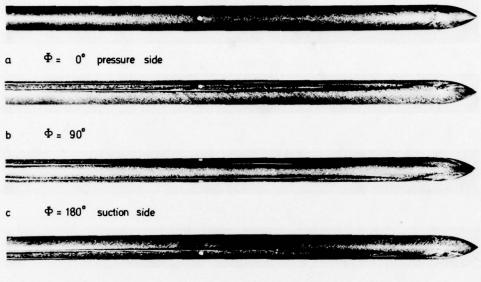


Figure 1.16 Oil flow picture for M_{∞} = 0.7, Re_D = 5.7 · 10 5 , α = 25 o



d $\Phi = 270^{\circ}$

Alan Alan Alan properties and the grant and an analysis and an

2. MBB - Body of Revolution No. 3

W. Lorenz-Meyer

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E. V.

and

F, Aulehla

Messerschmitt - Bölkow - Blohm GmbH, Ottobrunn (München)

Introduction

The present data set contains selected results from surface pressure and force measurements on Body No. 3 of 5 parabolic bodies of revolution, which differ only by the shape of their afterbody. Details of the model geometry are given in <u>Fig. 2-1</u>. The presented data were taken during three test phases with the following aims:

- Phase 1: Surface pressure measurements on 5 parabolic bodies of revolution. Variation of Mach number, Reynolds number, and incidence; transition free (Results: Table 2-4, 2-5)
- Phase 2: Surface pressure measurements on 3 bodies of revolution (No. 1, 3, and 5) with check of repeatability, and chord force measurements. Further, variations of Mach number, Reynolds number, and incidence were made; transition was fixed by carborundum (Results: Table 2-6, 2-7, and 2-8).
- Phase 3: Forebody drag force measurements with different aftbody contours. Pressure measurements on test section wall with and without model. Variation of Mach number and Reynolds number; transition fixed by carborundum (Results: Table 2-9, 2-10).

The flow conditions included here are listed in <u>Table 2-1</u>. In Phase 1 the tests were performed without fixed transition. In Phase 2 and 3, however, the transition were fixed at about 5 % L in order to have a turbulent boundary layer on the whole surface; moreover, forebody drag measurements without fixed transition did not allow significant interpretation.

The included data are neither corrected for blockage nor axial pressure gradients. But it should be emphasized that pressure measurements on the upper and lower test section wall have indicated some possible errors

- a) for the static pressure p dependent on Mach and Reynolds number
- b) for the drag due to an axial pressure gradient in the tunnel depending on model, Mach, and Reynolds number (Reference [14]).

However, pressure measurements on the center-line and on the side walls did not indicate any gradients, except at $Ma_{\infty} = 0.5$. These errors which probably occur in all transonic windtunnels and which usually lie within the limitations of the measuring equipment are not essential for standard force and pressure measurements.

1. General Description

- 1.1 Model Designation or Name
- 1.2 Model Type (e.g., Full Span
- 1.4 Additional Remarks

2. Model Geometry

2.2 Body Data (Detail Description of Body Geometry)

MBB - Body - of Revolution No. 3 body of revolution

forebody: x = 0 to x = 0.5 L cubic shape; cylindrical part: x = 0.5 L to 0.6875 L; aftbody: x = 0.6875 L to 0.967 L cubic shape sting diameter: 3.0 cm theoretical body length: L = 80 cm body diameter: D = 12 cm actual length: 77.4 cm analytical form: see Fig. 2-1 [12], [13]

2.4 Cross Sectional Area Development

2.5 Fabrication Tolerances/Waviness

2.6 Additional Remarks

3. Wind Tunnel

- 3.1 Designation
- 3.2 Type of Tunnel
 - 3.2.1 Continuous or Blowdown.
 Indicate Minimum Run Time
 if Applicable
 - 3.2.2 Stagnation Pressure
 - 3.2.3 Stagnation Temperature
- 3.3 Test Section
 - 3.3.1 Shape of Test Section
 - 3.3.2 Size of Test Section (Width, Height, Length)
 - 3.3.3 Type of Test Section Walls
 Closed, Open, Slotted,
 Perforated
 Open Area Ratio (Give
 Range if Variable)
 Slot/Hole Geometry (e.g.,
 30-Degree Slanted Holes)
 Treatment of Side Wall
 Boundary Layer
 Full span models
 Half-model testing
- 3.4 Flow Field (Empty Test Section)
 - 3.4.1 Reference Static Pressure
 - 3.4.2 Flow Angularity
 - 3.4.3 Mach Number Distribution
 - 3.4.4 Pressure Gradient
 - 3.4.5 Turbulence/Noise Level
 - 3.4.6 Side Wall Boundary Layer
- 3.5 Freestream Mach Number (or Velocity)
 - 3.5.1 Range
 - 3.5.2 Pressures Used to
 Determine Mach Number
 (e.g., Settling Chamber
 Total Pressure and Plenum
 Chamber Pressure)
 - 3.5.3 Accuracy of Mach Number Determination (\(\Delta \) Ma)
 - 3.5.4 Maximum Mach Number
 Variation in x,y,z-Direction
 (Empty Tunnel; Specify at What
 Mach Number)

Maximum Variation of Flow

Maximum Mach Number Variation During a Run see Fig. 2-1

1 x 1 Meter Transonic Wind Tunnel,

continuous, closed circuit

0.4 bar up to 1.6 bar ambient

square

1 meter, 1 meter, 3 meter perforated,

6 % .

30 degree slanted holes, four walls are perforated and plenum suction is applied to adjust free stream conditions.

In case of 2-D and half-model-testing solid end plates (\emptyset 0.57 m) are used.

plenum pressure, calibrated against side wall static pressure and lancet-probe [3] in the empty tunnel, $\Delta \alpha = \Delta \beta < \pm 0.05$ wedge probe calibration

see Chapter A5 Fig. 5.5 and Ref. [1], [2], [3] also see 3.5.4

low turbulence level (measurements are in progress) [10] low noise level $(\sqrt{n F(n)} < 0.001)$ [8]

| Ma | 0.5 | 0.8 | 1.0 | 1.2 |
|----|-----|-----|-----|--------|
| δ | 8.0 | 7.4 | 6.7 | 6.5 cm |

transonic Ma = 0.5 - 1.2; supersonic Ma = 1.3 - 2.0

transonic range: settling chamber total pressure/ and plenum chamber pressure. Dependence between plenum pressure and free stream static pressure has been calibrated by lancet-probe and side-wall static pressure [3]

 Δ Ma = \pm 0.003

| Ma | 0.5 | 0.8 | 1.0 | 1.2 |
|----------------------------|--------|-------|-------|-------|
| ΔMa(x-direct.) (z-direct.) | 0.005 | 0.003 | 0.006 | 0.015 |
| δ Ma/δ (x/L) | 0.0037 | 0.000 | | |

± 0.05°

 Δ Ma = \pm 0.001

- 3.6 Reynolds Number Range
 - 3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)
 - 3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization)
- 3.7 Temperature Range and Dewpoint. Can Temperature be Controlled?
- 3.8 Model Attitudes
 - 3.8.1 Angle of Attack, Yaw,
 - 3.8.2 Accuracy in Determining Angles
- 3.9 Organization Operating the Tunnel and Location of Tunnel
- 3.10 Who is to be Contacted for Additional Information
- 3.11 Literature Concerning this Facility
- 3.12 Additional Remarks

4. Tests

- 4.1 Type of Tests
- 4.2 Blockage
- 4.3 Test Conditions
 - 4.3.1 Angle of Attack
 - 4.3.2 Mach Number
 - 4.3.3 Dynamic Pressure
 - 4.3.4 Reynolds Number
 - 4.3.5 Stagnation Temperature
- 4.4 Transition
 - 4.4.1 Free or Fixed
 - 4.4.2 Position of Free Transition
 - 4.4.3 Position of Fixed
 Transition, Width of
 Strips, Size and Type of
 Roughness Elements
 - 4.4.4 Were Checks Made to
 Determine if Transition
 Occured at Trip Locations?
- 4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes

Ma

$$0.5$$
 1.0
 2.0

 ReMAX
 $1.7 \cdot 10^7$
 $1.8 \cdot 10^7$
 $1.2 \cdot 10^7$

 ReMIN
 $0.27 \cdot 10^7$
 $0.42 \cdot 10^7$
 $0.5 \cdot 10^7$

pressurization

$$T_{o}^{\approx 310}$$
 K (ambient) , no $t_{Dewpoint}^{\approx 250}$ K

2-D and sheared wings: total 25° (± 0.02°) half-models: total incidence 25° (± 0.02°) complete models: total incidence: 30° (± 0.02°) *

total yaw : 15° (± 0.1°) total roll : 360° (± 0.1°)

* range can be extended by cranked stings

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V. Bunsenstrasse 10 34 Göttingen (FRG)

Dr.-Ing. W. Lorenz-Meyer Address: see 3.9

Ref. [1] - [7]

surface pressure distribution oil flow pictures, force measurements complete model and forebody alone, top wall static pressure

1.13 %

0.5 to 1.2

0.06 bar to 0.53 bar

5 · 10⁶ to 16 · 10⁶ (related to theoretical body length)

ambient (~ 310)

free (Run No. 1-24, 163 - 165) fixed (Run No. 89 - 100, 130 - 147)

unknown

Run 130 - 147 : Carborundum . 180 K (~ 95 µm) x = 6.3 % L l = 6 mm density ~ 50 %

Run 89 - 100 : Carborundum 150 K (\sim 110 μ m) x = 5 % L l = 5 mm density \sim 50 %

No

5 aftbody configurations were tested, which differ in length of cylindrical part (see Fig. 2-1 and Table 2-3)

4.7 Areas and Lengths Used to Form Coefficients

area: cross section S = π D²/4 = 113.09 cm² for Run No. 130 - 147, 163 - 165 cross section S = 112.81 cm for Run No. 89 - 100 base area: S_B = 7.54 cm²

length: reference length L = 80 cm

[11] - [15] [11] - [15]

[11]

5. Instrumentation

o. Instrumentation

4.9 Related Reports

4.8 References on Tests

- 5.1 Surface Pressure Measurements
 - 1.2 Pressure Orifices on Fuselage. Location and Number
 - 5.1.4 Geometry of Orifices
 - 5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy
- 5.2 Force Measurements
 - 5.2.1 Type and Location of Balance
 - 5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy
 - 5.2.3 Forces and Moments on Components.

Type and Location of Balance

Maximum Loads and Accuracy.

- 5.4 Surface Flow Visualization
 - 5.4.1 Indicate Method Used to Determine
 - Streamline pattern
 - Boundary-layer transition

see Fig. 2-2 and Table 2-2, 2-3

0.2 mm in diameter

CEC differential pressure transducers ± 5 and ± 10 psid; Scanivalve Type MJ 48 accuracy ± 0.3 % FS

TASK 1.25 MK IV internal balance position see Fig. 2-3 (Run No. 130 - 147)

axial force; 340 N; 1 % FS

Fore body axial force (Run No. 89 - 100)

normal-force spring element, internally mounted (see: Fig. 2-4)

50 N; ± 0.02 N

a Titanium dioxyd-oil suspension is sprayed over the black painted model. Then the model is exposed for $\approx 10 \text{s}$ to the flow of a Free-Jet-Blow-Down-Facility of 0.75 m x 0.75 m test-section size. This facility is different from that described in 3.

6. Data

- 6.1 Accuracy
 - 6.1.1 Pressure Coefficients
 - 6.1.2 Aerodynamic Coefficients
 - 6.1.4 Repeatability
- 6.2 Wall Interference Corrections
- \pm 1 % assuming worst possible combination of errors including an error of Δ Ma = \pm 0.002, evaluated at Ma $_{\infty}$ = 0.8 and max. c $_{p}$ \pm 0.5 %

within 1%, compare Run No. 10 and 163; see Ref. [11]

standard wall corrections were not applied to these tests;

6.2.5 Reference on Wall-Interference Corrections

6.3 Data Presentation Run No. 130 - 147: axial force, base drag corrected drag of complete body Run No. 89 - 100: fore body axial force, internal pressure force, "forebody" drag 6.3.1 Aerodynamic Coefficients Table 2-8, 2-10 6.3.2 Surface Pressure Coefficients Fig. 2-5, 2-6, 2-7, 2-8, 2-9 and Table 2-4, 2-5, 2-6, 2-7, 2-9, 2-10 6.3.3 Flow Conditions for - Aerodynamic Coefficient data Table 2-1 and Pressure data 6.3.6 Wall Interference Corrections Included? No, but see Fig. 2-14, 2-15, 2-16, 2-17, 2-18 6.3.7 Aeroelastic Corrections Included ? see Ref. [14], [15] 6.3.8 Other Corrections? 6.3.9 Additional Remarks No It is planned, to rebuild the current model for 6.4 Were Tests Carried Out in Different tests in AEDC 4 T and/or 16T. Facilities on the Current Model? Contact: E.R. Thompson, Arnold Air Force Base, If so, What Facilities. Are Data Included in Present Data Base? Tullahoma, Tenn. 37389 7. References Der Transsonische Windkanal der Aerodynamischen Versuchs-[1] Ludwieg, H. Lorenz-Meyer, W. anstalt Göttingen. Jahrbuch WGLR 1966 (1967) pp. 145-155. Schneider, W. Der Transsonische Windkanal der Aerodynamischen Versuchs-[2] Hottner, Th. Lorenz-Meyer, W. anstalt Göttingen (Zweite Ausbaustufe). Jahrbuch DGLR 1968 (1969) pp. 235-244. [3] Lorenz-Meyer, W. Die Strahleigenschaften der Meßstrecke des Transsonischen Windkanals der AVA. DLR-FB 66-19 (1966). Test - Facilities of the DFVLR in the Transonic and Hypersonic [4] Lorenz-Meyer, W. Speed-Range and Main Activities. DLR-FB 71-86 (1971) Windkanalkorrekturen bei Messungen an zweidimensionalen Profilen im Transsonischen Windkanal der Aerodynamischen Ver-

[5] Mackrodt, P.A. suchsanstalt Göttingen. ZFW 19 (1971) pp. 449-454.

Kanalkorrekturen für den Transsonischen Windkanal der Aero-[6] Lorenz-Meyer, W. dynamischen Versuchsanstalt Göttingen bei Messungen an dreidimensionalen Modellen. ZFW 19 (1971) pp. 454-461.

[7] Lorenz-Meyer, W. Der Transsonische Windkanal 1m x 1m der DFVLR - AVA - Ein Überblick über die Aktivitäten von 1963 - 1977 -Festschrift zum 65. Geburtstag von Prof. Dr. H. Ludwieg, pp. 4-1 + 4-54, Göttingen 1977

[8] Holst, H. Druckschwankungsmessungen im Transsonischen Windkanal der Grosche, F.R. DFVLR-AVA Göttingen. DFVLR-AVA - Report 251-75 A 17 (1975). Binder, B.

| [9] Meier, H.U. | The Response of Turbulent Boundary Layers to Small Turbulence Levels in the External Free Stream. ICAS-Paper 76-05 (1976). |
|--|--|
| [10] Heddergott, A. | Einfluß der erhöhten Turbulenz der freien Anströmung auf die Druck- und Kraftbeiwerte eines superkritischen Profils. DFVLR-AVA Report 251-76 A 10 (1977). |
| [11]Lorenz-Meyer, W. | Beitrag zur Frage des Vorkörperwiderstandes eines nicht angestellten Rotationskörpers mit unterschiedlichen Heckkonfigurationen. DFVLR-AVA Report 251-74 A 27 (1974). |
| [12] Aulehla, F. Besigk, G. | Reynolds-Number Effects on Fore- and Aftbody Pressure Drag. AGARD CP 150 No. 12 (1974). |
| [13] Aulehla, F. Besigk, G. | Fore- and Afthody Flow Field Interaction with Consideration of Reynolds Number-Effects. AGARD CP 208 No. II-F (1975). |
| [14] Aulehla, F. | Grenzen der Widerstandsbestimmung schlanker Körper in trans- sonischen Windkanälen. MBB-Report UFE 1315 (Ö) 1976. |
| [15] Aulehla, F. | Drag Measurement in Transonic Wind Tunnels. AGARD Specialist's Meeting on Aircraft Performance Prediction Methods, Paris (1977), Paper No. 7. |
| 8. List of Symbols | |
| $c_p = (p - p_{\infty})/q_{\infty}$ | surface pressure coefficient on body shape |
| $c_{pi} = (p_i - p_{\infty})/q_{\infty}$ | internal pressure coefficient in the model |
| $c_{pw} = (p_w - p_{\infty})/q_{\infty}$ | surface pressure coefficient on top test section wall |
| $C_X = X/q_{\infty} \cdot S$ | measured axial force coefficient |
| $C_B = (p_i - p_{\infty})S_B/q_{\infty} \cdot S$ | base drag coefficient |
| $^{\mathrm{C}}_{\mathrm{X}_{\mathrm{corr}}}$ | corrected axial force coefficient either by base drag or by internal pressure drag |
| D DP | body diameter (= 12 cm) measured value of surface pressure (Volt) |
| L | theoretical body length (= 80 cm) |
| t | width of carborundum strips (mm) |
| Ma | free stream Mach number |
| P | pressure |
| q | dynamic pressure |
| $^{ m Re}$ L | Reynolds number based on theoretical body length |
| $S = \pi D^2/4$ | body face area (= 113,09 or 112.81 cm ² Phase 2 or 3 resp.) |
| S _B = | base area (= 7.54 cm ²) |
| Т | temperature (K) |
| x | axial force |
| x | axial coordinate from apex (cm) |
| α | angle of attack |
| δ | side wall boundary layer thickness (pitot pressure = 0,999 po) |
| | |

Indices

0 stagnation condition

w on the wall

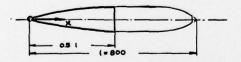
co free stream

B model base

i in the model

Table: 2-1 Flow Conditions Included in DATA BASE (MBB-Body-of-Revolution No. 3)

| | α,0, | P ₀ | Ma | 0.5 | 0.6 | 0.8 | 0.85 | 0.90 | 0.95 | 0.98 | 1.05 | 1.10 | 1.20 | Transition |
|---------|-------------------|-----------------------------|-----------|-------------------|-------------------|-----------------------|-------------------|------|------|------|------|------|------|----------------|
| Phase 1 | -3 0 3 5 | [mm Hg] 735 735 735 735 300 | | 13 14 15 | 11 12 16 | 164 10(163) 165 | 7 8 9 | 6 | 5 | 4 | 3 | 2 | 1 | free |
| Ь | -3 0 3 | 735 735 735 735 | | 144 143 142 | 139 140 141 | 134 133 135 | 138 137 136 | 20 | | | | | | fixed (180K) |
| Phase 2 | -3 0 3 | 300 300 300 | | | | 131 130 132 | | | | | | | | fixed (180K) " |
| Ā | -3 0 3 | 1160 1160 1160 | | | | 1 46 1 45 1 47 | | | | | | | | fixed (180K) |
| ase | 0.8 | Model Fempty Shape 3 | Re · 10-6 | 5.0 89 97 | 90 98 | 91 99 | 92 100 | | | | | | | fixed (150K) |



| test point | x/1 | nominal value | actual value |
|---------------|--------|------------------|-----------------|
| Apex | 0 | (0.0 | (m m) |
| 1 | 0.025 | 20.0 | 20.78 |
| 2 | 0.075 | 60.0 | 60.58 |
| 3 | 0.125 | 100.0 | 100.40 |
| 4 | 0.175 | 140.0 | 140.40 |
| 5 | 0.2125 | 170.0 | 170.28 |
| 6 | 0.25 | 200.0 | 200.06 |
| 7 | 0.2875 | 230.0 | 230.18 |
| 8 | 0.325 | 260.0 | 260.28. |
| 9 | 0.3625 | 290.0 | 290.28 |
| 10 | 0.4 | 320.0 | 320.27 |
| 11 | 0.4375 | 350.0 | 350.30 |
| 12 | 0.475 | 380.0 | 380.27 |
| junction | 0.5 | 400.0 | 400.30 |

 $\frac{\text{Table 2-2:}}{\text{Forebody}} \ \frac{\text{Position of Pressure Orifices,}}{\text{Forebody}}$

Controll orifices on lower surface

x/1 = 0.025

0.2875

0.81875

0.175

0.75625



| test | | x-nomina | ι | actual va | lue (r | nm) | |
|---------|------------|----------|---------|-----------|---------|---------|---------|
| point | x/1 | value | Shape 1 | Shape 2 | Shape 3 | Shape 4 | Shape 5 |
| juncti | on | 400.0 | 400.30 | 400.30 | 400.30 | 400.30 | 400.30 |
| 13 | 0.525 | 420.0 | 420.20 | 420.30 | 420.18 | 420.28 | 420.70 |
| 14 | 0.575 | 460.0 | 460.30 | 460.30 | 460.34 | 461.26 | 460.50 |
| 15 | 0.6125 | 490.0 | 490.30 | 490.30 | 490.34 | 490.30 | 490.50 |
| 16 | 0.64375 | 515.0 | 515.18 | 515.18 | 515.36 | 515.31 | 515.70 |
| 17 | 0.675 | 540.0 | 540.24 | 540.30 | 540.32 | 540.30 | 540.50 |
| 18 | 0.7 | 560.0 | 560.32 | 560.34 | 560.60 | 560.20 | 560.30 |
| 19 | 0.71875 | 575.0 | 575.50 | 575.34 | 575.36 | 575.30 | 575.40 |
| 20 | 0.7375 | 590.0 | 590.30 | 590.36 | 590.42 | 590.28 | 590.30 |
| 21 | 0.75625 | 605.0 | 605.18 | 605.30 | 605.51 | 605.26 | 605.50 |
| 22 | 0.775 | 620.0 | 620,22 | 620.90 | 620.56 | 620.26 | 620.60 |
| 23 | 0.79375 | 635.0 | 635.20 | 635.30 | 635.36 | 635.26 | 635.60 |
| 24 | 0.80625 | 645.0 | 645.37 | 645.14 | 645.42 | 645.24 | 645.30 |
| 25 | 0.81875 | 355.0 | 655.14 | 655.22 | 655.38 | 655.00 | 655.40 |
| 26 | 0.83125 | 665.0 | 665.32 | 665.20 | 665.29 | 664.98 | 665.80 |
| 27 | 0.84375 | 675.0 | 675.06 | 675.10 | 675.12 | 674.88 | 675.40 |
| 28 | 0.85625 | 685.0 | 685.16 | 685.02 | 685.10 | 684.96 | 685.70 |
| 29 | 0.86875 | 695.0 | 694.86 | 694.96 | 695.18 | 694.90 | 695.40 |
| 30 | 0.88125 | 705.0 | 704.84 | 704.92 | 705.06 | 704.82 | 705.30 |
| 31 | 0.89375 | 715.0 | 714.92 | 714.88 | 715.07 | 714.84 | 715.20 |
| 32 | 0.90625 | 725.0 | 724.82 | 724.92 | 724.96 | 724.78 | 725.10 |
| . 33 | 0.91875 | 735.0 | 734.66 | 734.82 | 734.88 | 734.84 | 734.90 |
| . 34 | 0.93125 | 745.0 | | 744.76 | 744.76 | 744.60 | 744.55 |
| 35 | 0.94375 | 755.0 | | | 754.60 | 754.58 | 754.30 |
| 36 | 0.95625 | 765.0 | | | | 764.42 | 764.10 |
| 37 | 0.96875 | 775.0 | | | | | 774.1 |
| positio | n of shape | end | 758.51 | 768.96 | 774.20 | 779.36 | 785.03 |

<u>Table 2-3:</u> Position of Pressure Orifices, Aftbody (1 to 5)

$\label{eq:measurements} \mbox{Measurements on MBB-Body-of-Revolution} \\ \mbox{Body No. 3}$

Position of body static pressure orifices rel. to model apex [cm]

| 2.08 | 6.06 | 10.04 | 14.04 | 17.03 | 20.01 | 23.02 | 26.03 | 29.03 | 32.03 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 35.03 | 38.03 | 42.02 | 46.03 | 49.03 | 51.54 | 54.03 | 56.06 | 57.54 | 59.04 |
| | | 63.54 | | | | | | | |
| 71.51 | 72.50 | 73.49 | 74.48 | 75.46 | 0.00 | 0.00 | 2.08 | 14.04 | 23,02 |
| 60.55 | 65.54 | | | | | | | | |

Constants & calibration:

Reference area S = 113.094 cm²

Chord length L = 80 cm

Cal. of pressure pickup EP = 24.71 mm Hg/Volt

Cal. of chord force elem. EX = 0.183 kp/Volt

Table 2-4: Calibration and Geometrical Data, Test Phase 1

| . 4 Ma= | $\alpha = 0^{\circ}$ Re _L = 10.7 · 10 ⁶ | . do do 1/x | 0.026 5.303 0.51740 0.076 2.446 0.25330 | 0.666 | -1.458 | | -2.275 | | 0.303 -2.438 -0.19806 | -0-679 | -0.279 | -0.302 | -0-337 | 0.613 -0.372 -0.00717 | -0-475 | | -1.021 | | -2.376 | 0.794 -3 413 -0.30448 | -4-067 | -2.850 | | | 11.043 | | 0.092 | 0.178 | | 0.218 | | 20000 | 000.0 | - 0-905 | -2.347 | -2.372 | 0.819 -4.542 -0.39310 |
|---------------------|---|-------------|--|---------|----------------------|----------|----------|----------|-----------------------|----------|----------|----------|----------|-----------------------|------------------|----------|----------|----------|----------|-----------------------|----------|--------|----------|----------|----------------------|--------------|----------|----------|----------|----------|----------|---------------------|----------|---------|----------|----------|-----------------------|
| Run No. 3 Ma = 1.05 | $= 0^{\circ}$ $\text{Re}_{\text{L}} = 10.8 \cdot 10^{6}$ | , do do 7/x | 0.026 6.324 0.57789 0.076 3.360 0.31876 | 1.452 | 0.213 -0.910 -0.0544 | -1.588 | -2,131 | -2.509 | 0.363 -2.306 -0.17646 | -2.395 | -2.100 | -1.551 | -0.789 | 0.613 -0.480 -0.01687 | | 0.033 | -0.263 | -0.871 | -0.958 | 0.776 -1.640 -0.11827 | -2.808 | -2.048 | -3.593 | -4.082 | 0.650 -4.779 -0.3074 | -2.151 | -0.607 | -0.211 | -0-111 | -0.115 | -0-113 | 0.000 0.123 0.03583 | 5.916 | -0-305 | -2.277 | | 0.819 -3.112 -0.24738 |
| | $Re_{L} = 11 \cdot 10^{6} \qquad \alpha$ | d) | 6.724 0.59460 3.749 0.34255 | 0.18576 | 010000 | -0.03027 | -0.05812 | -0.09231 | -2.072 -0.15040 | -0.16355 | -0.16282 | | -0.15581 | -2.104 -0.15321 | -0.00921 | | 0.00079 | -0.04521 | -0.09256 | -1.857 -0.13225 | -0.22662 | | -0.29206 | -0.32875 | 1,000 - 1,000 1 | -0.26322 | -0.06715 | -0.03286 | -0.02135 | -0.01780 | -0.01789 | 0 150 0 01154 | 0.55926 | 0.04432 | -0.06803 | -0.07795 | -0.26723 |
| Ma = 1.20 Run No. | $Re_{L} = 11.2 \cdot 10^{6}$ $\alpha = 0^{0}$ | 7/x d5 | 0.57689 0.026 | 0.19466 | 0 0.07934 0.173 | -0.02521 | -0.05517 | -0.07787 | | -0.11012 | -0.07572 | -0.05941 | -0.03971 | -0.02969 | 2 -0.02016 0.675 | -0.05365 | -0.05718 | -0.10638 | -0.13379 | | -0.21331 | | -0.25972 | -0.30092 | | -0.35598 | -0.11822 | -0.05901 | -0.04772 | -0.04450 | 96040-0- | | -0.01539 | 0.53836 | -0.08467 | -0.15112 | 4 -0.20685 0.819 |
| .1 | α = 0 ₀ F | X/L DP | 0.026 6.857 | | 0.175 | | | | 0.363 -1.565 | 944 | | | | 0.613 -0.650 | 0.644 | | | | | 0.776 -2.381 | 0.807 | | | | | 0.881 -4.696 | | | | | | | 0.000 | 0.175 | • | | 0.819 -2.844 |

Table 2-5: Pressure Data (Run 1 to 24), Test Phase 1

| Run No. 5 | Ma = | Ma = 0.95 | Run No. 6 | $\mathbf{Ma} = 0.90$ | 0.90 | | 7 Ma = 0 | .85 | Run No. 8 | $\mathbf{Ma} = 0$ | .85 |
|----------------------|--------|--------------------------|------------------|----------------------|--------------------------|----------------------|------------------|------------------------|-----------|-------------------|------------------------|
| $\alpha = 0^{\circ}$ | Re L | = 10.6 · 10 ⁶ | $\alpha = 0^{0}$ | Re L | = 10.3 · 10 ⁶ | $\alpha = 0^{\circ}$ | ${ m Re}_{ m L}$ | = 10 · 10 ⁶ | α = 30 | ${ m Re}_{ m L}$ | = 10 · 10 ⁶ |
| 1x | 8 | 8 | x/r | e o | a. | x/r | 90 | 3 | x/L | 90 | 3 |
| | | | | | | | | | 0 036 | , , , | 70300 |
| 0.026 | 2.176 | 0.49835 | 0.076 | 1.766 | 0.20954 | 0.026 | 3.906 | 0.19596 | 0.076 | 0.946 | 0.13671 |
| | 0.462 | 0.07160 | 0.125 | 0.203 | 0.05286 | 0.125 | 0.100 | 0.04664 | 0.125 | -0.396 | -0.00619 |
| 1 | -0.671 | -0.03603 | 0.175 | -0.905 | -0.05813 | 0.175 | -0.847 | -0.05425 | 0.175 | -1.247 | -0.09689 |
| | -1.528 | -0.11743 | 0.213 | -1.457 | -0.11345 | 0.213 | -1.293 | -0.10181 | 0.213 | -1.601 | -0.13464 |
| | -1.937 | -0.15623 | 0.250 | -1.758 | -0.14358 | 0.250 | -1.530 | -0.12699 | 0.250 | -1.766 | -0.15228 |
| 887-0 | 147-7- | -0-18510 | 9550 | -1.8/4 | -0.14048 | 0.288 | -1.615 | -0.13609 | 0.325 | -1.624 | -0-13717 |
| | -1.722 | -0-19591 | 0.363 | -1.614 | -0.12922 | 0.363 | -1-438 | -0.11736 | 0.363 | -1.479 | -0.12171 |
| | -1.413 | -0-10649 | 0.400 | -1.408 | -0.10850 | 00,400 | -1.283 | -0.10064 | 004.0 | -1.287 | -0.10112 |
| | -1.126 | -0.07924 | 0.438 | -1.145 | -0.08217 | 0.438 | -1.062 | -0.07707 | 0.438 | -1.057 | -0.07663 |
| | -0.623 | -0.03146 | 0.475 | -0.766 | -0.04420 | 0.475 | -0.760 | -0.04497 | | -0.753 | -0.04425 |
| | -0.490 | -0.01882 | 0.525 | -0.659 | -0.03348 | 0.525 | -0.662 | -0.03451 | | -0.654 | -0.03368 |
| | -0.475 | -0.01739 | 0.575 | -0.640 | -0.03158 | 0.575 | -0.653 | -0.03355 | | -0.648 | -0.03305 |
| 619.0 | 0.516 | -0.02128 | 0.013 | 160.0- | -0.04120 | 0.613 | 969.0- | -0.03834 | 0.644 | -0-749 | -0.04381 |
| | -0.676 | -0-03651 | 0.675 | -0.906 | -0.05822 | 575.0 | 10.903 | -0.06020 | | -0-914 | -0.06138 |
| | -0.877 | -0.05560 | 0.701 | -1.149 | -0.08259 | 0.701 | -1-120 | -0.08335 | | -1.132 | -0.08453 |
| | -1.314 | -0.09715 | 0.719 | -1.583 | -0.12604 | 0.719 | -1.487 | -0.12238 | | -1.474 | -0.12104 |
| | -2.102 | -0.17204 | 0.738 | -2.207 | -0.18869 | 0.738 | -1.955 | -0.17217 | | -1.886 | -0.16495 |
| | -2.637 | -0.22295 | 0.757 | -2.625 | -0.23040 | 0.157 | -2.267 | -0.20542 | | -2.149 | -0.19287 |
| 200 | -3.188 | -0.27533 | 794 | -3.592 | -0.32726 | 0.70 | -2.786 | -0.26084 | | -2.483 | -0.22829 |
| | -4.229 | -0.37451 | 0.807 | -3.738 | -0.34193 | 0.807 | -2.857 | -0.26845 | | -2.458 | -0.22543 |
| | -2.890 | | 0.819 | -2.102 | | 0.819 | -1.597 | | | -1.278 | |
| | -4.924 | -0-44054 | 0.832 | -3.018 | -0.26973 | 0.832 | -2.630 | -0.24403 | | -2.063 | -0.18333 |
| 0.844 | -4.668 | -0-41607 | 0.844 | -2.575 | -0.22524 | 0.844 | -2.392 | -0.21878 | 448.0 | -1.148 | -0-10464 |
| | -0.422 | -0-13379 | 0.869 | -1-363 | -0.10406 | 0.850 | -1.465 | -0.12002 | | -0.746 | -0.04337 |
| | 0.132 | 0.04027 | 0.881 | -0.634 | -0.03099 | 0.881 | -0.835 | -0.05292 | | -0-148 | 0.02025 |
| | 0.493 | 0.07458 | 0.894 | 0.082 | 0.04077 | 0.894 | -0-147 | 0.02032 | 0.894 | 0.421 | 0.08084 |
| | 0.700 | 0.09424 | 906-0 | 901.0 | 0.10323 | 906.0 | 0.495 | 0.08866 | 9060 | 0.887 | 0.13044 |
| | 908-0 | 0-10430 | 616.0 | 1.128 | 0.14542 | 0.919 | 966.0 | 0.14197 | 616.0 | 1.168 | 0.16028 |
| | 0.871 | 0.11048 | 0.931 | 1.346 | 0.16731 | 0.931 | 1.276 | 0.17183 | 0.931 | 1.280 | 0.17233 |
| | 0.894 | 0.11266 | 0.943 | 1.430 | 7,010 | 0.943 | 1.397 | 0.18485 | 0000 | 1.333 | 0.11.00 |
| 0000 | 1.119 | 0.13400 | 000 | 1.518 | 18465 | 0000 | 1.472 | 0 19276 | 000.0 | 1.444 | 0.18973 |
| | 1.591 | 0.44283 | 0.026 | 3.993 | 0.43269 | 9000 | 3.534 | 0.41247 | 0.026 | 4-153 | 0.47809 |
| | -1.025 | -0.06962 | 0.175 | -1.151 | -0.08282 | 0.175 | -1-087 | -0-01979 | | -0.670 | -0.03534 |
| | -2.234 | -0-18444 | 0.288 | -1.970 | -0.16488 | 0.288 | -1.699 | -0-14494 | | -1.558 | -0.13000 |
| | -2.616 | -0.22079 | 0.757 | -2.600 | -0.22804 | 0.757 | -2.215 | -0.19987 | | -2.296 | -0.20841 |
| 0.819 | 969-4- | -0.41844 | 0.819 | -3.148 | -0.28308 | 0.819 | -2.655 | -0.24681 | | -3.159 | -0.30037 |
| | | | | | | | | | | | |

Table 2-5: (Continued)

| = 8.3 · 10 ⁶ | 8 | 0.28066 0.06220 0.06220 0.06220 0.13516 0.13516 0.13516 0.13516 0.06433 0.06433 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 0.06436 | 0.00076 -0.08564 -0.16892 -0.25130 |
|-------------------------------------|------------|---|--|
| 12 Ma = Re _L | do | 1.10031 1.10031 1.10031 1.10033 1.1003 | -0.250 -0.758 -1.247 -1.732 |
| Run No. $\alpha = 5^{\circ}$ | x/L | 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | 0.175 0.288 0.757 0.819 |
| = 0.6 = 8.3 · 10 ⁶ | a S | 0.39168 0.15894 0.03846 0.03846 0.03842 0.10323 0.10313 0.03622 0.03622 0.03622 0.03622 0.03622 0.03623 0.03623 0.03623 0.03633 0.03623 0.03633 0.03633 0.03648 0.03648 0.03648 0.03648 0.03648 0.03648 | -0.06886 -0.11751 -0.15495 -0.19682 |
| 11 Ma Re _L | 0.0 | 2.0044 0.0044 | -0.658 -0.943 -1.163 -1.408 |
| Run No. $\alpha = 0^{\circ}$ | x/r | 0.026 0.175 0.175 0.175 0.175 0.188 0.383 0.383 0.473 0.674 0.674 0.684 0.884 0.884 0.884 0.884 0.884 0.884 0.884 0.884 0.884 0.884 0.884 | 0.175 0.288 0.757 0.819 |
| = 0.80 L = 9.8 · 10 ⁶ | đ. | 0.14480 0.16480 0.16480 0.01480 0.016480 0.016480 0.016480 0.016440 | -0.07551 -0.13351 -0.18186 -0.22618 |
| 10 Ma | dO | 3.487 0.1038 1.1356 1.1356 1.1356 1.1356 1.1356 1.1356 1.1356 1.1366 1.1 | -1.506 -1.930 -2.318 |
| Run No. $\alpha = 0^{0}$ | x/r | 0.000 0.0176 | 0.175 0.288 0.757 0.819 |
| = 0.85 L = 10 · 10 ⁶ | 8 | 0.34075 0.03895 0.03895 0.12203 0.12203 0.12277 0.03108 0.03308 0.03308 0.03308 0.03308 | -0.00296 -0.11273 -0.20821 -0.32558 |
| 9 Ma Re _L | d 0 | 2.861 0.579 0.579 0.579 0.579 1.685 | -0.366 -1.396 -2.292 -3.394 |
| Run No. $\alpha = 5^{0}$ | x/L | 0.026 0.076 0.076 0.023 0.023 0.023 0.024 0.034 | 0.175 0.288 0.757 0.819 |

Table 2-5: (Continued)

| . 16 Ma = 0.6 | $\alpha = 0^{\circ}$ Re _L = 3.5 · 10 ⁶ | 40 V/X | 0.026 0.851 0.39929 0.076 0.299 0.16837 | -0.015 | -0.285 | 0.250 -0.334 -0.09648 | -0.335 | -0.319 | 0.438 -0.256 -0.06380 | -0.202 | -0.150 | 0.575 -0.153 -0.02066 | -0.181 | -0.216 | -0.260 | -0.328 | 0.757 -0.466 -0.15114 | -0.514 | -0.552 | | -0.245 | 0.832 -0.540 -0.16219 | -0.455 | -0.367 | -0.256 | -0.120 | | 0.919 0.194 0.12439 | 0.400 | 0.425 | 0.426 | 0.758 | -0.249 | 0.288 -0.314 -0.11302 | -0.540 |
|---------------|--|----------------|--|----------|----------|-----------------------|----------|----------|-----------------------|----------|----------|-----------------------|----------|----------|----------|----------|-----------------------|----------|----------|----------|--------|-----------------------|----------|----------|----------|----------|---------|---------------------|---------|---------|---------|---------|----------|-----------------------|----------|
| 1 = 0.5 | L = 3.0 · 10 ⁶ | 8 | 0.38518 | 0.03641 | -0.01290 | -0.09088 | -0.09317 | -0.08588 | -0.05952 | -0.02708 | -0.02528 | -0.01687 | -0.02923 | -0.04269 | -0.06067 | -0.08761 | -0-12021 | -0-16069 | -0.17424 | -0.17873 | | -0.15793 | -0.13878 | -0.10500 | -0.06186 | -0.00963 | 0.05211 | 0.17658 | 0-21426 | 0.23047 | 0.23047 | 0.34881 | -0.05614 | -0-13635 | -0.16944 |
| 15 Ma | ${ m Re}_{ m L}$ | å | 0.607 | -0.016 | -0.211 | -0.243 | -0.247 | -0.234 | -0-187 | -0-147 | -0-126 | -0-1111 | -0-133 | -0.157 | -0.189 | -0.237 | -0-295 | -0-367 | -0.391 | -0.399 | -0-163 | -0.384 | -0.328 | -0.268 | -0-191 | -0.098 | 0.012 | 0.130 | 0.301 | 0.330 | 0.330 | 0.541 | -0-181 | -0.324 | -0.383 |
| Run No. | $\alpha = 0^{\circ}$ | x/r | 0.026 | 0.125 | 0.213 | 0.250 | 0.325 | 0.363 | 0.4.0 | 0.475 | 0.525 | 0.575 | 0.013 | 0.675 | 0.701 | 0.719 | BE1.0 | 0.776 | 0.794 | 0.807 | 0.819 | 0.832 | 0.856 | 698-0 | 0.881 | 0.894 | 90.00 | 116.0 | 0.943 | 0.000 | 0000 | 0.026 | 0.175 | 0.25 | 0.819 |
| 0.5 | L = 7.3 · 10 ⁶ | 8 | 0.26663 | -0.05018 | -0-12787 | -0.13496 | -0.11838 | -0.10609 | -0.05896 | -0.03682 | -0.03154 | -0.02949 | -0-03749 | -0.04959 | -0.06489 | -0.08848 | -0-11498 | -0-14043 | -0-14637 | -0.14614 | | -0-10321 | -0.08310 | -0.04590 | -0.00437 | 0.04082 | 0.08758 | 0-13046 | 0.17686 | 0.19575 | 0.19583 | 0.45017 | 0.00208 | 16350 | -0.24093 |
| 14 Ma = | ReL | å | 0.971 | -0.419 | -0-760 | -0.791 | -0-718 | -0.664 | -0-457 | -0-360 | -0.337 | -0.328 | -0-363 | -0-416 | -0.483 | -0.586 | 20.70 | -0-814 | -0.840 | -0.839 | -0.379 | 10.0 | -0.563 | -0.400 | -0.218 | -0.020 | 0.185 | 0.373 | 0.577 | 0.660 | 099.0 | 1.776 | -0.190 | -0.550 | -1.257 |
| Run No. | a = 5° | 1 _x | 0.026 | 0.125 | 0.213 | 0.250 | 0.325 | 0.363 | 0.430 | 0.475 | 0.525 | 0.575 | 0.644 | 0.675 | 0.701 | 0.719 | 0.738 | 0.776 | 0.794 | 0.807 | 0.819 | 0.832 | 0.856 | 0.869 | 0.881 | 0.894 | 9060 | 0.919 | 0.963 | 0.00 | 00000 | 0.026 | 0.175 | 0.288 | 0.819 |
| Ma = 0.5 | L = 7.2 · 10 ⁶ | 8 | 0.37701 | 0.02622 | -0.08282 | -0.10109 | -0-10325 | -0.09769 | -0.07964 | -0.03878 | -0.03513 | -0.03376 | -0.03899 | -0.05728 | -0.07453 | -0-10257 | -0-13459 | -0.17389 | -0.18958 | -0.19545 | | -0-18750 | -0-15990 | -0.12367 | -0.08091 | -0.02820 | 0.03467 | 0.10168 | 0.19525 | 0.20593 | 0.20579 | 0.34181 | -0.06641 | -0-11543 | -0.18819 |
| 13 Ma | ${\rm Re}_{\rm L}$ | do | 1.455 | -0.084 | -0.420 | -0.642 | -0-651 | -0.627 | -0.548 | -0-369 | -0.353 | -0-347 | -0.370 | -0.450 | -0.526 | 649-0- | -0-789 | -0.863 | -1.031 | -1.056 | -0.535 | -1.022 | 100.00 | -0.742 | -0.554 | -0-323 | -0-047 | 0.247 | 505-0 | 0.705 | 0.704 | 1.301 | 164.0- | -0-706 | -1.026 |
| Run No. | a = 00 | K | 0.026 | 0.125 | 0.213 | 0.250 | 0.325 | 0.363 | 0.400 | 0-475 | 0.525 | 0.575 | 0.613 | 0.675 | 0.701 | 0.719 | 0.738 | 727 | 0.794 | 0.807 | 0.819 | 0.832 | 0.844 | 0.869 | 0.881 | 0.894 | 906-0 | 0.919 | 0.931 | 0-000 | 0.000 | 0.026 | 0.175 | 0.288 | 0.819 |

Table 2-5: (Continued)

| X/L OP CP CP | 7.1. DP CP 0.026 1.619 0.45808 0.0125 0.0470 0.125 0.0440 0.20283 0.125 0.04772 0.1275 0.0345 0.05472 0.223 0.04772 0.228 0.0472 0.484 0.0549 0.484 0.0244 0.484 0.0244 0.484 0.0244 0.484 0.0284 0.484 0.0364 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0394 0.484 0.0493 0.1991 0.493 0.493 0.1991 | = 0° Re _L = 4.4. | 10^6 $\alpha =$ | 00 | Re _L = 16 · 10 ⁶ |
|--|--|--------------------------------------|-------------------|----|--|
| X/L OP CP X/L | 0.026 1.619 0.45808 0.076 0.640 0.20283 0.125 0.045 0.04772 0.115 -0.315 -0.05142 0.256 -0.643 -0.1262 0.258 -0.643 -0.1262 0.258 -0.643 -0.1262 0.258 -0.643 -0.1262 0.438 -0.643 -0.1263 0.438 -0.643 -0.1263 0.445 -0.643 -0.1263 0.446 -0.643 -0.1264 0.644 -0.224 -0.03489 0.775 -0.224 -0.03489 0.775 -0.224 -0.03489 0.775 -0.224 -0.03489 0.776 -0.224 -0.03489 0.777 -0.291 -0.03489 0.778 -0.224 -0.03489 0.778 -0.224 -0.03489 0.779 -0.224 -0.03489 0.779 -0.224 -0.03489 0.770 -0.224 -0.03489 0.771 -0.224 -0.03489 0.771 -0.224 -0.03489 0.772 -0.23677 0.884 -0.368 -0.03948 0.884 -0.368 -0.03948 0.991 -0.288 -0.0398 0.991 -0.628 -0.18498 0.993 -0.628 -0.19938 0.028 -0.409 -0.1938 | | | | 1 |
| 0.026 1.619 0.44869 0.4286 0.026 0.186 0.41860 0.4216 0.021 | 0.076 0.046 0.045808 0.077 0.045 0.0472 0.175 0.045 0.04772 0.175 0.045 0.04772 0.288 0.04772 0.388 0.046 0.12262 0.488 0.046 0.12261 0.498 0.045 0.0424 0.475 0.042 0.01243 0.475 0.042 0.01243 0.475 0.042 0.01243 0.475 0.042 0.01243 0.475 0.042 0.01243 0.475 0.042 0.01243 0.475 0.044 0.0244 0.475 0.0244 0.047 0.0244 0.047 0.0244 0.047 0.0244 0.047 0.0244 0.047 0.0244 0.048 0.0244 0.048 0.0246 0.089 0.049 0.0248 0.091 0.049 0.0248 0.091 0.049 0.0494 0.092 0.093 0.0944 0.093 0.044 0.09308 0.094 0.005 0.0948 0.094 0.006 0.042 0.19510 0.007 0.044 0.0010 0.007 0.044 0.0010 0.007 0.044 0.0010 0.007 0.0010 0.007 0.0010 0.007 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 | ОР | x | | |
| 0.127 | 0.076 0.045 0.04283 0.175 0.045 0.04712 0.175 0.045 0.04712 0.251 0.045 0.04712 0.253 0.045 0.04712 0.288 0.045 0.012262 0.438 0.04283 0.02263 0.438 0.044 0.0213 0.448 0.0442 0.02243 0.547 0.0442 0.02243 0.547 0.0442 0.02243 0.547 0.0423 0.01243 0.547 0.0442 0.02243 0.547 0.0423 0.01243 0.547 0.0424 0.02243 0.547 0.0424 0.02243 0.047 0.0424 0.02243 0.047 0.0424 0.02243 0.047 0.0424 0.02243 0.047 0.0424 0.02243 0.047 0.0424 0.02243 0.047 0.0426 0.02243 0.0484 0.0426 0.023470 0.081 0.047 0.023470 0.081 0.047 0.023470 0.081 0.047 0.023470 0.081 0.047 0.0262 0.01418 0.0494 0.0026 0.03468 0.0404 0.062 0.019510 0.0404 0.062 0.019510 0.0404 0.062 0.019510 0.0406 0.0406 0.0419 | 1.806 | | | |
| 0.213 | 0.115 0.213 0.228 0.286 0.286 0.286 0.287 0.497 0.497 0.497 0.497 0.497 0.497 0.497 0.497 0.497 0.497 0.613 0.614 0. | 0.748 | | | |
| 0.256 | 0.213 | 680.0 | | | |
| 0.250 -0.601 -0.602 -0.603 </td <td>0.256 0.257 0.258 0.363 0.363 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.476 0.477 0.477 0.477 0.484 0.477 0.484 0.494</td> <td>645.0</td> <td></td> <td></td> <td></td> | 0.256 0.257 0.258 0.363 0.363 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.475 0.476 0.477 0.477 0.477 0.484 0.477 0.484 0.494 | 645.0 | | | |
| 0.288 -0.645 -0.12411 0.288 -0.174 -0.1870 -0.288 -0.174 -0.1870 -0.288 -0.174 -0.1870 -0.284 -0.174 -0.0921 </td <td>0.288</td> <td>-0-488</td> <td></td> <td></td> <td></td> | 0.288 | -0-488 | | | |
| 0.335 -0.645 -0.11251 0.325 -0.649 -0.11362 0.326 -0.11362 0.326 -0.11261 0.325 -0.649 -0.11362 0.326 -0.11362 0.326 -0.11362 0.326 -0.11362 0.326 -0.11362 0.326 -0.11362 0.326 -0.11362 0.326 -0.11362 0.326 -0.01376 0.01364 | 0.325 -0.615 -0.12451 0.403 -0.404 -0.11251 0.438 -0.442 -0.07735 0.525 -0.213 -0.07735 0.527 -0.221 -0.07735 0.644 -0.224 -0.0243 0.644 -0.227 -0.0243 0.701 -0.224 -0.0243 0.701 -0.227 -0.03489 0.701 -0.227 -0.03489 0.701 -0.227 -0.03489 0.702 -0.213 -0.03489 0.703 -0.227 -0.03489 0.704 -1.114 -0.23479 0.807 -1.114 -0.23479 0.807 -1.047 -0.2044 0.808 -0.484 -0.346 0.808 -0.484 -0.346 0.809 -0.609 0.900 0.629 0.10683 0.901 0.629 0.19998 0.000 0.629 0.19998 0.000 0.629 0.19938 0.000 0.629 0.19034 | -0-734 | | | |
| 0.436 -0.569 -0.643 -0.643 -0.643 -0.569 -0.569 -0.569 -0.569 -0.643 -0.643 -0.643 -0.643 -0.643 -0.643 -0.643 -0.643 -0.643 -0.0134 -0.643 -0.0134 -0.643 -0.0134 -0.643 -0.0134 -0.643 -0.0134 -0.643 -0.0134 -0.0144 -0.0264 -0.0267 -0.0104 -0.0267 -0.0267 -0.0267 < | 0.363 -0.559 -0.11251 0.400 -0.442 -0.09213 0.475 -0.224 -0.03244 0.575 -0.224 -0.03245 0.613 -0.224 -0.02243 0.613 -0.224 -0.02243 0.613 -0.224 -0.02243 0.613 -0.224 -0.02243 0.779 -0.272 -0.03491 0.779 -0.272 -0.03491 0.779 -0.272 -0.03491 0.776 -1.026 -0.07491 0.776 -1.028 -0.07491 0.801 -0.264 -0.10612 0.802 -0.043 -0.03040 0.804 -0.092 -0.10633 0.804 -0.092 -0.10633 0.804 -0.092 -0.10633 0.805 -0.005 -0.10633 0.906 -0.625 -0.10418 0.907 -0.626 -0.19510 0.907 -0.627 -0.19510 0.000 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 0.007 -0.629 -0.19510 | -0-696 | | | |
| 0.430 -0.449 -0.09213 0.400 -0.538 -0.647 -0.0924 -0.528 -0.528 -0.528 -0.518 -0.647 -0.094 -0.528 | 0.4600 | -0-633 | | | |
| 0.438 -0.442 -0.03945 -0.479 | 0.438 | -0-53 B | | | |
| 0.475 -0.263 -0.0324 -0.275 -0.267 -0.087 -0.087 -0.087 -0.187 -0.188< | 0.475 | -0-474 | | | |
| 0.525 -0.202 -0.01697 0.525 -1.101 0.613 -0.221 -0.0216 0.575 -1.101 0.613 -0.251 -0.0216 0.575 -1.101 0.613 -0.251 -0.0216 0.644 -1.243 -0.0216 0.645 -1.101 0.644 -0.276 -0.01491 0.644 -0.26 0.0432 0.644 -1.243 0.719 -0.576 -0.11393 0.701 -0.432 -0.0332 0.675 -1.243 0.719 -0.576 -0.11393 0.719 -0.611 -1.116 -0.11823 0.719 -1.180 0.716 -0.432 -0.0502 0.718 -0.217 -0.11823 0.718 -1.180 0.716 -0.1182 0.718 -0.218 0.719 -0.11823 0.719 -1.180 0.716 -0.1182 0.718 -0.218 0.719 -0.218 0.719 -1.180 0.716 -0.221 -0.011 0.710 -0.211 | 0.575 -0.213 -0.01958 0.654 -0.224 -0.02243 0.664 -0.227 -0.0243 0.664 -0.227 -0.03489 0.675 -0.376 -0.03489 0.701 -0.426 -0.03489 0.718 -0.426 -0.011393 0.718 -0.776 -0.11393 0.718 -0.776 -0.11393 0.719 -0.776 -0.11393 0.710 -0.776 -0.11393 0.710 -0.776 -0.11393 0.711 -0.226 -0.12849 0.884 -0.943 -0.1083 0.891 -0.284 -0.0364 0.894 -0.006 -0.1643 0.991 0.4072 0.18498 0.991 0.4072 0.18498 0.993 0.617 0.19316 0.000 0.629 0.19336 0.175 -0.409 -0.1063 | -0-267 | | | |
| 0.6375 -0.224 0.575 -0.221 -0.0216 0.575 -1.101 0.643 -0.224 -0.02244 0.675 -0.221 -0.0216 0.575 -1.101 0.643 -0.226 -0.03469 0.644 -0.247 -0.03267 0.641 -1.126 0.044 -1.127 -0.0352 0.641 -1.128 0.641 -1.128 0.641 -1.128 0.641 -1.128 0.641 -1.128 0.641 -1.128 0.641 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 -1.128 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0. | 0.575 -0.224 -0.02243 0.6613 -0.224 -0.02945 0.6675 -0.272 -0.03495 0.719 -0.626 -0.03491 0.719 -0.626 -0.03491 0.776 -0.957 -0.11393 0.776 -0.901 -0.18612 0.776 -0.901 -0.18612 0.807 -1.14 -0.23170 0.807 -1.14 -0.23170 0.807 -1.047 -0.23079 0.808 -0.949 -0.0998 0.809 -0.949 -0.0998 0.900 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 0.000 0.629 0.199510 | -0-202 | | | |
| 0.641 -0.251 -0.02945 0.613 -0.247 -0.02867 0.613 -1.143 0.644 -0.251 -0.05153 0.675 0.675 0.615 -1.143 0.675 -0.426 0.05153 0.675 0.6 | 0.6413 -0.251 -0.02945 0.6644 -0.251 -0.03489 0.675 -0.336 -0.03489 0.738 -0.576 -0.03489 0.739 -0.776 -0.11933 0.777 -0.901 -0.1860 0.777 -0.901 -0.1860 0.777 -1.028 -0.23170 0.819 -0.565 -0.23679 0.832 -1.047 -0.23679 0.834 -0.565 -0.23679 0.8854 -0.586 -0.23679 0.8854 -0.586 -0.10683 0.8854 -0.286 -0.10683 0.8854 -0.286 -0.10683 0.8854 -0.286 -0.106724 0.9854 -0.286 -0.106724 0.9854 -0.286 -0.19998 0.991 0.577 0.18498 0.000 0.629 0.19998 0.000 0.629 -0.19998 0.175 -0.681 -0.19378 | -0-219 | | | |
| 0.644 -0.272 -0.03489 0.644 -0.268 -0.03325 0.647 -1.259 -0.275 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.675 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 -1.523 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.701 0.7 | 0.644 -0.272 -0.03489 0.701 -0.426 -0.00453 0.719 -0.426 -0.00451 0.719 -0.426 -0.00451 0.757 -0.901 -0.18602 0.776 -0.201 -0.18602 0.776 -0.208 -0.22170 0.807 -1.114 -0.22414 0.807 -1.104 -0.20446 0.808 -0.096 -0.10683 0.809 -0.006 -0.10683 0.906 -0.226 -0.10683 0.906 -0.226 -0.10683 0.906 -0.226 -0.10683 0.907 -0.009 0.000 -0.627 -0.1998 0.000 -0.627 -0.1998 0.000 -0.627 -0.1998 0.000 -0.628 -0.1998 0.000 -0.629 -0.1998 0.000 -0.629 -0.1998 0.000 -0.629 -0.1998 0.000 -0.629 -0.1998 | -0-247 | | | |
| 0.675 -0.336 -0.019153 0.0675 -0.337 -0.05022 0.675 -1.523 0.770 -0.426 -0.07491 0.770 -0.437 -0.017643 0.770 -1.909 0.778 -0.0776 -0.11393 0.771 -0.21873 0.771 -1.909 0.776 -1.028 -0.776 -0.1347 0.774 -1.904 0.777 -1.909 0.776 -1.028 -0.2170 0.776 -1.247 -0.21873 0.776 -2.906 0.776 -1.114 -0.25474 0.774 -1.247 -0.21744 0.776 -5.137 0.807 -1.114 -0.26077 0.784 -1.247 -0.21744 0.776 -5.137 0.810 -1.114 -0.26077 0.784 -1.1247 -0.21744 0.776 -5.137 0.810 -1.024 -0.26077 0.784 -1.027 -0.2184 0.776 -5.137 0.82 -1.024 -0.22184 0.786 -0.189 0.884 < | 0.675 -0.335 -0.09153 0.719 -0.426 -0.01491 0.718 -0.576 -0.11393 0.776 -1.028 -0.23170 0.777 -0.901 -0.228170 0.777 -1.114 -0.22414 0.807 -1.114 -0.22474 0.819 -0.2697 -0.2046 0.844 -0.797 -0.2046 0.845 -0.79 -0.10683 0.889 -0.0788 -0.10683 0.981 -0.088 -0.10683 0.991 0.572 0.19918 0.993 0.629 0.19918 0.000 0.62 0.19918 0.000 0.620 0.19918 0.0175 -0.406 -0.10024 | -0.268 | | | |
| 0.701 -0.426 -0.07491 0.7101 -0.432 -0.017363 0.7711 -1.909 0.719 -0.776 -0.116313 0.719 -0.6811 -0.11768 0.771 0.776 -0.16612 0.777 -0.6813 -0.21187 0.775 -2.619 0.776 -0.2117 -0.2117 0.776 -0.2711 0.776 -2.619 0.774 -1.114 -0.25541 0.777 -0.21114 0.776 -2.619 0.807 -1.114 -0.25541 0.687 -0.3114 0.776 -5.137 0.817 -1.114 -0.25541 0.687 -0.3114 0.776 -5.512 0.807 -1.104 -0.25541 0.687 -0.3114 0.776 -5.512 0.817 -1.047 -0.25641 0.687 -0.3114 0.776 -5.614 0.807 -1.047 -0.22044 0.684 -0.2186 0.684 -0.5186 0.846 -0.266 -0.268 -0.0683 0.684 <td< td=""><td>0.701 -0.426 -0.07491 0.738 -0.576 -0.13933 0.737 -0.901 -0.1860 0.776 -1.028 -0.23470 0.807 -1.114 -0.254170 0.807 -1.114 -0.254170 0.807 -1.114 -0.254170 0.807 -1.114 -0.25477 0.807 -0.943 -0.25677 0.806 -0.296 -0.29679 0.806 -0.298 -0.03998 0.801 -0.288 -0.03998 0.801 -0.288 -0.09998 0.900 0.625 0.19998 0.000 0.625 0.19998 0.000 0.626 0.19998 0.0175 -0.499 -0.19378</td><td>-0-337</td><td></td><td></td><td></td></td<> | 0.701 -0.426 -0.07491 0.738 -0.576 -0.13933 0.737 -0.901 -0.1860 0.776 -1.028 -0.23470 0.807 -1.114 -0.254170 0.807 -1.114 -0.254170 0.807 -1.114 -0.254170 0.807 -1.114 -0.25477 0.807 -0.943 -0.25677 0.806 -0.296 -0.29679 0.806 -0.298 -0.03998 0.801 -0.288 -0.03998 0.801 -0.288 -0.09998 0.900 0.625 0.19998 0.000 0.625 0.19998 0.000 0.626 0.19998 0.0175 -0.499 -0.19378 | -0-337 | | | |
| 0.719 -0.517 -0.1176 -0.11873 0.719 -0.611 -0.11768 0.719 -2.619 0.776 -0.16612 0.776 -1.247 -0.22187 0.776 -1.247 -0.22187 0.776 -2.619 0.776 -1.034 0.776 -1.247 -0.22187 0.776 -2.619 0.807 -1.140 -0.25414 0.776 -1.247 -0.32126 0.776 -2.5134 0.776 -5.137 0.776 -2.5134 0.776 -2.514 0.776 -5.137 0.776 -2.514 0.776 -5.137 0.776 -5.137 0.776 0.776 -0.32180 0.776 -5.137 0.776 0.777< | 0.719 -0.576 -0.11393 0.757 -0.901 -0.1860 0.776 -0.901 -0.1860 0.776 -0.901 -0.1860 0.776 -1.114 -0.22170 0.807 -1.114 -0.22677 0.807 -1.107 -0.2077 0.808 -0.555 -0.22679 0.809 -0.055 -0.2079 0.809 -0.009 0.809 -0.009 0.900 0.627 0.10683 0.901 0.627 0.10683 0.901 0.627 0.10683 0.901 0.627 0.10693 0.000 0.627 0.19998 0.000 0.627 0.19998 0.000 0.627 0.19998 0.000 0.627 0.19998 0.000 0.627 0.19998 | -0.432 | | | |
| 0.738 -0.873 -0.873 -0.18623 0.738 -0.2218 0.737 -4.352 -0.21867 0.737 -4.352 -0.21867 0.737 -4.352 -0.2187 -5.157 -4.352 -0.2187 0.737 -4.352 -0.2187 0.737 -4.352 -0.2187 0.737 -4.352 0.738 -5.152 -6.044 -6.0244 0.0774 -6.027 0.731 0.2724 0.737 -6.044 0.774 -6.014 0.774 -6.014 0.774 -6.014 0.774 -6.014 0.774 -6.014 0.774 0.774 </td <td>0.738 -0.776 -0.106012 0.776 -1.028 -0.23170 0.787 -0.901 -0.2860 0.807 -1.114 -0.22617 0.819 -0.255 -0.2077 0.844 -1.1047 -0.2077 0.845 -0.786 -0.20946 0.865 -0.786 -0.10683 0.981 -0.288 -0.10683 0.981 -0.288 -0.10784 0.994 -0.05 -0.10788 0.994 -0.05 -0.10998 0.993 -0.65 -0.19910 0.000 -0.62 -0.19918 0.0175 -0.409 -0.10704</td> <td>-0.611</td> <td></td> <td></td> <td></td> | 0.738 -0.776 -0.106012 0.776 -1.028 -0.23170 0.787 -0.901 -0.2860 0.807 -1.114 -0.22617 0.819 -0.255 -0.2077 0.844 -1.1047 -0.2077 0.845 -0.786 -0.20946 0.865 -0.786 -0.10683 0.981 -0.288 -0.10683 0.981 -0.288 -0.10784 0.994 -0.05 -0.10788 0.994 -0.05 -0.10998 0.993 -0.65 -0.19910 0.000 -0.62 -0.19918 0.0175 -0.409 -0.10704 | -0.611 | | | |
| 0.754 -0.27187 0.757 -1.034 -0.22187 0.757 -4.352 0.754 -0.22187 0.757 -4.352 0.754 -1.028 -0.23170 0.776 -1.034 -0.22187 0.757 -5.137 0.754 -1.028 0.203170 0.776 -1.034 -0.22187 0.776 -5.137 0.819 0.0.819 -0.23242 0.819 -0.23242 0.819 -0.2544 0.766 0.819 -0.23242 0.819 -0.23242 0.819 -0.2554 0.819 -0.23242 0.819 -0.2554 0.819 -0.23242 0.819 -0.2554 0.819 -0.23242 0.819 -0.25114 0.2567 0.819 -0.23242 0.819 -0.25114 0.819 -0.2514 0.819 -0.2514 0.819 -0.2514 0.819 -0.2514 0.819 -0.2514 0.819 -0.2514 0.819 -0.251805 0.819 0.819 -0.251805 0.819 0.819 -0.251805 0.819 0.819 -0.251805 0.819 0.819 -0.251805 0.819 | 0.757 -0.990 -0.1860 0.774 -1.114 -0.25417 0.819 -0.565 -0.22677 0.814 -0.943 -0.20677 0.854 -0.943 -0.20676 0.856 -0.786 -0.10683 0.889 -0.288 -0.03908 0.894 -0.005 0.01648 0.906 0.262 0.10418 0.910 0.463 0.1658 0.000 0.629 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.627 0.19998 0.000 0.628 -0.19998 | -0-873 | | | |
| 0.177 -0.2743 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -5.137 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 -6.512 0.776 0.781 | 0.976 -1.114 -0.22417 0.807 -1.114 -0.25617 0.8032 -1.047 -0.23677 0.804 -0.556 -0.23679 0.865 -0.780 -0.10683 0.881 -0.286 -0.10683 0.894 -0.028 -0.10683 0.906 -0.226 -0.10683 0.906 -0.226 -0.10683 0.907 -0.228 -0.10683 0.907 -0.228 -0.10683 0.908 -0.228 -0.10683 0.909 -0.228 -0.10998 0.900 -0.229 -0.19998 0.000 -0.229 -0.19998 0.000 -0.229 -0.19998 0.000 -0.229 -0.19998 0.000 -0.239 -0.19998 | -1.034 | | | |
| 0.0794 -1.1140 -0.25414 0.794 -1.237 -0.31114 0.794 -6.064 0.819 -0.267 0.817 -1.397 -0.32262 0.819 -5.051 0.819 -0.267 0.819 -0.733 -0.26196 0.819 -5.034 0.832 -1.047 -0.23479 0.0834 -1.2180 0.819 -5.034 0.844 -0.2044 -0.2046 0.684 -1.047 0.884 -5.034 0.845 -0.788 -0.10633 0.684 -0.789 0.884 -0.21063 0.881 -0.205 -0.0994 0.084 -0.0994 0.884 -1.206 0.884 -0.01648 0.03403 0.894 0.091 0.884 -1.206 0.894 -0.023 -0.1073 0.0174 0.091 0.084 -1.206 0.894 -0.023 -0.1073 0.0174 0.091 0.081 -1.206 0.894 -0.024 0.091 0.091 0.091 0.091 | 0.819 -0.25414 0.819 -0.565 0.819 -0.565 0.844 -0.943 -0.2046 0.856 -0.780 -0.16724 0.8869 -0.588 -0.16724 0.894 -0.288 -0.03908 0.919 -0.262 0.10418 0.919 0.463 0.15658 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 | -1.247 | | | |
| 0.817 -0.82762 0.819 -0.555 0.819 -0.512 0.813 -0.2046 -0.23479 0.819 -0.21805 0.819 -1.6512 0.844 -0.2044 -0.2046 0.844 -1.199 -0.22196 0.819 -5.034 0.844 -0.2046 -0.187 -0.21805 0.844 -1.361 0.844 -4.361 0.846 -0.2180 -0.16124 0.884 -0.16126 0.844 -4.361 0.846 -0.2180 -0.3443 0.884 -0.603 -0.6112 0.844 -4.361 0.894 -0.203 -0.0013 0.084 -0.612 0.084 -0.612 0.684 -2.414 0.894 -0.001 0.091 0.091 0.091 0.084 0.091 | 0.817 - 1.140 - 0.565 | -1.397 | | | |
| 0.814 -0.2614 0.812 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.813 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 -0.2614 0.814 | 0.837 - 0.23679 0.844 - 0.244 - 0.23674 0.846 - 0.743 - 0.23674 0.849 - 0.758 - 0.10683 0.841 - 0.258 - 0.03908 0.941 - 0.052 - 0.10418 0.943 - 0.652 - 0.10418 0.943 - 0.653 - 0.18478 0.000 - 0.629 - 0.19510 0.000 - 0.629 - 0.19918 0.175 - 0.409 - 0.19074 0.277 - 0.881 - 0.14024 | 644-1- | | | |
| 0.884 | 0.844 -0.943 -0.2046 0.856 -0.780 -0.16724 0.881 -0.288 -0.10683 0.894 -0.288 -0.03908 0.919 -0.262 0.10418 0.919 0.463 0.15658 0.900 0.626 0.18490 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 | -0-133 | | | |
| 0.866 -0.787 -0.6126 0.884 -1.501 0.869 -0.781 -0.6126 0.884 -1.501 0.869 -0.781 -0.603 -0.60904 0.884 -1.208 0.881 -0.033 -0.60904 0.884 -1.208 -1.208 0.884 -0.0344 0.0349 0.884 0.001 0.884 0.003 0.906 0.0340 0.0349 0.0349 0.884 0.003 0.01 0.919 0.463 0.1558 0.919 0.519 0.1827 0.996 1.116 0.931 0.627 0.11827 0.0943 0.1827 0.996 1.116 0.932 0.1958 0.919 0.519 0.019 0.919 0.000 0.047 0.1914 0.0943 2.596 0.000 0.626 0.1994 0.000 0.647 0.1914 0.000 2.751 0.000 0.626 0.1994 0.000 0.647 0.1914 0.000 2.751 | 0.856 -0.780 -0.1672 0.869 -0.256 -0.10683 0.894 -0.026 -0.03463 0.906 0.262 0.10418 0.919 0.463 0.18658 0.000 0.629 0.19998 0.000 0.626 0.19998 0.000 0.626 0.19998 0.000 0.627 0.19998 0.000 0.627 0.19998 0.000 0.627 0.19998 | -1031 | | | |
| 0.869 -0.5548 -0.10683 0.869 -0.503 -0.9998 0.869 -2.414 0.881 -0.203 -0.09998 0.084 -0.203 -0.09998 0.869 -2.414 0.894 -0.015 0.0548 0.034 0.084 0.084 0.0994 0.084 0.009 0.906 0.249 0.0182 0.0548 0.099 0.084 0.099 0.084 0.099 0.919 0.453 0.1558 0.019 0.019 0.019 0.019 0.094 0.1187 0.094 0.1187 0.094 0.1191 0.094 0.019 0.094 0.019 0.094 0.019 0.094 0.001 0.094 0.001 0.094 0.001 0.094 0.001 0.094 0.001 0.094 0.001 0.094 0.019 0.094 0.019 0.094 0.019 0.094 0.019 0.094 0.019 0.094 0.019 0.094 0.091 0.094 0.094 0.094 0.094 0.094 | 0.869 -0.568 -0.10683 0.881 -0.03908 0.896 0.03443 0.991 0.463 0.10418 0.993 0.562 0.10418 0.993 0.563 0.10568 0.000 0.629 0.19918 0.000 0.629 0.19998 0.000 0.626 0.19998 0.175 -0.409 -0.019316 0.288 -0.409 -0.14024 | 120-1 | | | |
| 0.881 -0.288 -0.03908 0.881 -0.203 -0.01731 0.881 -1.208 0.894 -0.036 0.034643 0.0894 0.091 | 0.881 -0.288 -0.03908 0.894 -0.005 0.0344 0.906 0.262 0.10418 0.931 0.453 0.18498 0.000 0.625 0.18498 0.000 0.626 0.18498 0.000 0.626 0.19998 0.026 1.471 0.41936 0.175 -0.676 -0.19024 | -0.503 | | | |
| 0.894 0.091 0.05489 0.894 0.091 0.05489 0.894 0.091 0.05489 0.894 0.091 0.05489 0.894 0.091 0.05489 0.894 0.003 0.994 0.463 0.4643 0.18588 0.994 0.919 0.18078 0.994 0.18078 0.18078 0.18078 0.919 1.116 0.994 0.601 0.401 0.500 0.1794 0.18078 0.919 1.919< | 0.4894 -0.005 0.03463 0.3906 0.262 0.10418 0.31 0.572 0.18658 0.000 0.629 0.18698 0.000 0.629 0.19998 0.000 0.626 0.19998 0.175 -0.409 -0.19378 0.57 -0.881 -0.1378 | -0.203 | | | |
| 0.906 0.262 0.10418 0.906 0.349 0.11827 0.906 1.116 0.919 0.491 0.519 0.519 0.519 0.519 0.199 0.919 0.491 0.791 0.791 0.791 0.791 0.791 0.943 0.519 0.791 0.794 0.625 0.11784 0.913 2.393 0.000 0.626 0.1990 0.000 0.467 0.19141 0.000 2.751 0.000 0.626 0.1990 0.000 0.647 0.19141 0.000 2.751 0.000 0.626 0.1990 0.000 0.1941 0.000 2.751 0.100 0.626 0.1943 0.000 2.751 0.000 2.751 0.100 0.175 0.047 0.1918 0.000 2.751 0.100 0.175 0.047 0.1918 0.000 2.754 0.100 0.175 0.000 0.175 0.175 0.189 -1.844 | 0.996 0.262 0.10418 0.931 0.453 0.15658 0.093 0.651 0.19510 0.000 0.629 0.19918 0.000 0.626 0.19918 0.175 -0.499 -0.07064 0.288 -0.676 -0.14024 | 0.091 | | | |
| 0.919 0.463 0.15558 0.919 0.519 0.16003 0.919 1.930 0.941 0.1851 0.18548 0.931 0.600 0.11858 0.919 1.930 0.943 0.611 0.19510 0.044 0.617 0.1859 0.343 2.993 0.000 0.626 0.1979 0.000 0.747 0.1914 0.000 2.751 0.000 0.626 0.1979 0.000 0.647 0.1914 0.000 2.751 0.026 0.197 0.1912 0.000 2.751 0.000 2.751 0.175 0.047 0.1912 0.000 2.751 0.000 2.751 0.175 0.048 0.026 1.657 0.439 0.026 6.549 0.286 0.067 0.0175 0.0189 0.175 0.189 -1.844 0.177 0.187 0.189 0.189 0.189 -1.844 -1.844 0.177 0.189 0.189 0.189 | 0.919 0.463 0.15658 0.931 0.572 0.18478 0.000 0.621 0.19510 0.000 0.626 0.19998 0.026 1.471 0.41936 0.175 -0.409 -0.01064 0.258 -0.676 -0.14024 | 0.349 | | | |
| 0.931 0.572 0.18478 0.93i 0.660 0.17984 0.93i 2.393 0.943 0.611 0.19510 0.0943 0.625 0.1878 0.93i 2.596 0.000 0.629 0.19998 0.000 0.647 0.1914 0.000 2.756 0.026 1.471 0.41936 0.026 1.657 0.19128 0.000 2.756 0.175 -0.409 -0.07064 0.175 -0.430 0.0729 0.175 -1.844 0.288 -0.576 -0.1557 0.288 -0.1557 0.288 -3.253 0.757 -0.481 -0.19378 0.757 -1.4324 0.288 -0.1557 0.4384 0.757 -0.481 -0.1537 0.288 -0.1557 0.288 -3.253 0.0757 -0.288 -0.253 0.288 -0.384 -5.337 | 0.931 0.572 0.18498 0.943 0.611 0.19510 0.000 0.629 0.19998 0.000 0.626 0.19998 0.175 -0.409 -0.07064 0.257 -0.881 -0.19378 | 0.519 | | | |
| 0.943 0.611 0.19910 0.943 0.625 0.18598 0.943 2.556 0.000 0.626 0.19908 0.000 0.647 0.19141 0.000 2.751 0.000 0.626 0.19907 0.000 0.647 0.19141 0.000 2.756 0.002 1.471 0.4994 0.000 0.000 2.756 0.000 2.756 0.175 -0.4994 0.000 0.000 0.000 2.756 0.000 2.756 0.175 -0.4994 0.0076 0.175 0.43913 0.026 6.549 0.286 -0.676 0.1724 0.179 0.175 1.844 0.757 -0.899 -0.18597 0.288 -3.284 0.899 -0.15597 0.288 -3.284 0.819 -1.054 -0.2384 0.819 -5.339 | 0.943 0.611 0.19510 0.000 0.629 0.19998 0.000 0.626 0.19907 0.026 1.471 0.41936 0.175 -0.676 -0.4024 0.757 -0.881 -0.19378 | 009.0 | | | |
| 0,000 0,629 0,19998 0,000 0,647 0,19141 0,000 2,751 0,000 0,647 0,647 0,19128 0,000 2,756 0,026 1,471 0,41936 0,000 0,647 0,43913 0,026 6,549 0,175 -0,409 -0,07064 0,175 -0,430 -0,07292 0,175 -1,849 0,288 -0,609 -0,16024 0,288 -0,1597 0,288 -3,253 0,757 -1,032 -0,2597 -0,289 -0,15597 0,389 -3,253 0,819 -1,054 -0,23864 -1,333 -0,27504 0,819 -5,337 | 0.000 0.629 0.1998 0.000 0.626 0.19907 0.026 1.471 0.41936 0.175 -0.679 -0.07064 0.288 -0.676 -0.14024 0.757 -0.881 -0.19378 | 0.625 | | | |
| 0.000 0.626 0.19907 0.000 0.647 0.19128 0.000 2.756 0.002 0.026 1.647 0.19128 0.000 2.756 0.002 0.026 1.647 0.19128 0.002 0.549 0.002 0.026 0.549 0.175 0.49313 0.0026 0.175 0.49313 0.0026 0.175 0.184 0.175 0.175 0.184 0.175 0.17 | 0.000 0.626 0.19907 0.026 1.471 0.41936 0.175 -0.409 -0.07064 0.288 -0.676 -0.14024 0.77 -0.881 -0.19378 | 0.647 | | | |
| 0.026 0.026 0.026 0.026 0.026 0.026 0.026 0.549 0.175 -0.409 -0.07064 0.175 -0.769 -0.15597 0.175 -1.844 0.288 -0.676 -0.14024 0.288 -0.15597 0.288 -1.2844 0.175 -0.489 -0.15597 0.288 -1.284 0.175 -0.289 -0.15597 0.288 -1.284 0.189 -1.032 0.23384 0.819 -1.253 -0.27504 0.819 -5.397 | 0.026 1.471 0.41936 0.175 -0.409 -0.07064 0.288 -0.676 -0.14024 0.757 -0.881 -0.19378 | 0.647 | | | |
| 0.175 -0.430 -0.0764 0.175 -0.430 -0.07292 0.175 -1.844 0.288 -0.789 -0.1557 0.288 -3.253 0.757 -0.881 -0.1978 0.757 -1.095 -0.22061 0.757 -4.328 0.819 -1.054 -0.23884 0.819 -1.553 -0.27504 0.819 -5.337 | 0.175 -0.409 -0.07064 0.288 -0.405 -0.14024 0.757 -0.881 -0.19378 | 1.657 | | | |
| 0.288 -0.676 -0.14024 0.288 -0.769 -0.15597 0.288 -3.253 0.757 -0.881 -0.19378 0.757 -1.032 -0.22561 0.757 -4.328 0.819 -1.054 -0.23864 0.819 -1.253 -0.275504 0.819 -5.397 | 0.288 -0.676 -0.14024 0.757 -0.881 -0.19378 | -0.430 | | • | • |
| 0.757 -0.881 -0.19378 0.757 -1.032 -0.22061 0.757 -4.328 0.819 -1.054 -0.23884 0.819 -1.253 -0.27504 0.819 -5.397 | 0.757 -0.881 -0.19378 | -0.769 | | | |
| 0.819 -1.054 -0.23884 0.819 -1.253 -0.27504 0.819 -5.397 | | -1.032 | | | |
| | 0.819 -1.054 -0.23884 | -1.253 | | | |

Table 2-5: (Continued)

| Run No. 21 | $1 \mathbf{Ma} = 0.85$ | 0.85 | Run No. | 22 Ma = | Ma = 0.80 | | 23 Ma | Ma = 0.60 | Run No. 2 | 24 Ma = 0.5 | |
|--------------------|-------------------------|--------------------------|----------------------|------------------|--------------------------|----------------|------------------|------------------------|----------------------|-------------------------------|--------------------------|
| α = 0 ₀ | Re = | = 16.3 · 10 ⁶ | $\alpha = 0^{\circ}$ | ${ m Re}_{ m L}$ | = 15.6 · 10 ⁶ | $\alpha = 0_0$ | ${ m Re}_{ m L}$ | = 13 · 10 ⁶ | $\alpha = 0^{\circ}$ | $^{\mathrm{Re}_{\mathrm{L}}}$ | = 11.4 · 10 ⁶ |
| | | | ; | | | | | | į | ; | ; |
| χ, | å | å | ٧, | å | 8 | x/r | do | å | ۲\x | d | . |
| 0.026 | 6.557 | 0.46360 | 0.026 | 5.708 | 0.43816 | 0.026 | 3.344 | 0.39190 | 0.026 | 2.389 | 0.37827 |
| 0.125 | 0.147 | 0.04561 | 0.125 | 0.058 | 0.04280 | 0.125 | -0.102 | 0.03268 | 0.125 | -0.100 | 0.03143 |
| 0.175 | -1.410 | -0.05590 | 0.175 | -1.315 | -0.05314 | 0.175 | -0.885 | -0.04897 | 0.175 | -0.663 | -0.04707 |
| 0.213 | -2.553 | -0.13028 | 0.250 | -1.931 | -0.12012 | 0.213 | -1.232 | ~0.10546 | 0.250 | -1-045 | -0.10040 |
| 0.288 | -2.682 | -0.13870 | 0.288 | -2.388 | -0.12825 | 0.288 | -1.492 | -0.11228 | 0.288 | -1.093 | -0.10709 |
| 0.325 | -2.558 | -0.13065 | 0.325 | -2.255 | -0.11900 | 0.325 | -1.434 | -0.10623 | 0.325 | -1.060 | -0.10259 |
| 0.400 | -2.148 | -0.10393 | 0.400 | -1.950 | -0.11094 | 0.500 | -1.286 | -0.09072 | 0.400 | -10-1- | -0-08747 |
| 0.438 | -1.765 | -0.07902 | 0.438 | -1.609 | -0.07381 | 0.438 | -1.102 | -0.07150 | 0.438 | -0.825 | -0.06968 |
| 0.475 | -1.285 | -0.04771 | 0.475 | -1.225 | -0.04698 | 0.475 | -0.881 | -0.04856 | 0.475 | -0.671 | -0.04819 |
| 0.525 | -1.132 | -0.03776 | 0.525 | -1.101 | -0.03830 | 0.525 | -0-819 | -0.04213 | 0.525 | -0.631 | -0.04261 |
| 0.613 | -1.215 | -0.04321 | 0.613 | -1-168 | -0-04308 | 0.573 | -0.850 | -0.04666 | 0.613 | -0.666 | -0-04747 |
| 0.644 | -1.273 | -0.04698 | 0.644 | -1.217 | -0.04647 | 0.644 | -0.897 | -0.05025 | 0.644 | -0.688 | -0.05061 |
| 0.675 | -1.539 | -0.06426 | 0.675 | -1.459 | -0.06345 | 0.675 | -1.039 | -0.06510 | 0.675 | -0.791 | -0.06493 |
| 0.701 | -1.893 | -0.08734 | 0.701 | -1.77 | -0.12073 | 0.701 | -1.222 | -0.08409 | 0.701 | -0.920 | -0-10984 |
| 0.736 | -3.281 | -0-17799 | 0.738 | -2.911 | -0.16522 | 0.738 | -1.823 | -0-14677 | 0.738 | -1.347 | -0-14249 |
| 0.757 | -3.799 | -0.21198 | 0.757 | -3.329 | -0.19448 | 0.757 | -2.043 | -0.16980 | 0.757 | -1.499 | -0.16371 |
| 0.776 | -4.306 | -0.24505 | 0.776 | -3.722 | -0.22217 | 0.776 | -2.232 | -0.18953 | 0.776 | -1.630 | -0.18200 |
| 0.807 | -4.846 | -0.28041 | 0.807 | -4-131 | -0.25096 | 0.807 | -2.456 | -0.21299 | 0.807 | -1.787 | -0.20392 |
| 0.819 | -2.684 | | 0.819 | -2.286 | | 0.819 | -1.313 | | 0.819 | -0.949 | |
| 0.832 | -4.522 | -0.25915 | 0.832 | -3.935 | -0.23703 | 0.832 | -2.386 | -0.20564 | 0.832 | -1-740 | -0.19730 |
| 0.856 | -3.566 | -0.19674 | 0.856 | -3.289 | -0-19178 | 0.844 | -2.274 | -0-19417 | 0.844 | -1.664 | -0-18666 |
| 0.869 | -2.629 | -0.13561 | 0.869 | -2.532 | -0.13858 | 0.869 | -1.745 | -0.13885 | 0.869 | -1.306 | -0.13670 |
| 0.881 | -1.576 | -0.06685 | 0.881 | -1.637 | -0.07587 | 0.881 | -1.296 | -0.09198 | 0.881 | -0.981 | -0.09148 |
| 168.0 | 64.0 | 0.00731 | 900 | 0.000 | -0.00746 | 0.894 | -0-746 | -0.03454 | 0.894 | 609.0- | -0.03949 |
| 0.919 | 1.641 | 0.14285 | 0.919 | 1.349 | 0-13331 | 0.919 | 0.543 | 0-10001 | 0.919 | 0.327 | 96060-0 |
| 0.931 | 2.216 | 0.18041 | 0.931 | 1.999 | 0.17875 | 0.931 | 1.112 | 0.15941 | 0.931 | 0.756 | 0.15086 |
| 0.943 | 2.475 | 0.19738 | 0.943 | 2.311 | 0.20062 | 0.943 | 1.453 | 0.19501 | 0.943 | 1.042 | 0.19069 |
| 0000 | 2.613 | 0.20638 | 0000 | 2.448 | 0.21010 | 0.00 | 1.595 | 0.20975 | 0.000 | 1.158 | 0.20699 |
| 0.026 | 2.800 | 0.41422 | 0.026 | 5.130 | 0.30777 | 0.00 | 2 074 | 0.35363 | 0000 | 2 110 | 0 34097 |
| 0.175 | -1.721 | -0.07628 | 0.175 | -1.590 | -0.07252 | 0.175 | -1.053 | -0.06660 | 0.175 | -0.788 | -0.06463 |
| 0.288 | -2.815 | -0.14759 | 0.288 | -2.516 | -0.13728 | 0.288 | -1.562 | -0.11966 | 0.288 | -1.147 | -0.11474 |
| 0.757 | -3.724 | -0.20693 | 0.757 | -3.242 | -0.18797 | 0.757 | -1.976 | -0.16295 | 0.757 | -1.439 | -0-15537 |
| 0.819 | +09*+- | -0.26420 | 0.819 | -4.008 | -0.24185 | 0.819 | -2.421 | -0.20929 | 0.819 | -1.767 | -0.20123 |

Table 2-5: (Concluded)

Measurements on MBB-Body-of-Revolution Body No. 3

Position of body static pressure orifices rel. to model apex [cm]

Constants & calibration:

Reference area $S = 113.094 \text{ cm}^2$ Base area $S_R = 7.54 \text{ cm}^2$

Chord length L = 80 cm

Cal of pressure pickup EP = 22.02 mm Hg/VoltCal of chord force elem. EX = 0.184 kp/Volt

Table 2-6: Calibration and Geometrical Data, Test Phase 2

| | ×A | DP | CP | | ×⁄L | DP | CP |
|----|--------|----------|------------|----|--------|---------|-----------|
| 1 | 0.026 | 1.511 | 0.41578 | 1 | C. C26 | 1.791 | 0.49148 |
| 2 | 0.076 | 0.562 | 0.17907 | 2 | 0.076 | 0.815 | 0.24021 |
| 3 | 0.125 | -0.018 | 0.03425 | ; | 0.125 | C. 195 | 0.08694 |
| 4 | 0.175 | -0.371 | -0.05395 | 4 | 0.175 | -0.200 | -0.01075 |
| 5 | 0.213 | -0.529 | -0.09343 | 5 | C. 213 | -0.392 | -0.05828 |
| 6 | 0.250 | -0.610 | -0.11377 | 6 | 0.250 | -0.508 | -0.08699 |
| 7 | C. 288 | -0.643 | -0.12191 | 7 | 0.288 | -C.568 | -0.10181 |
| 8 | 0.325 | -0.604 | -0.11227 | 8 | 0.325 | -0.548 | -0.09699 |
| 9 | 0.363 | -0.566 | -0.10282 | 9 | 0.363 | -0.532 | -0.09301 |
| 10 | 0.400 | -0.512 | -0.08930 | 10 | 0.400 | -0.499 | -0.08486 |
| 11 | 0.438 | -0.420 | -0.06627 | 11 | 0.438 | -0.408 | -0.06231 |
| 12 | 0.475 | -0.299 | -0.03604 | 12 | 0.475 | -0.292 | -0.03361 |
| 13 | 0.525 | -0.263 | -0.02704 | 13 | 0.525 | -0.259 | -0.02545 |
| 14 | 0.575 | -0.262 | -0.02679 | 14 | 0.575 | -0.253 | -0. 02395 |
| 15 | 0.613 | -0.277 | -0.03053 | 15 | C. 613 | -0.265 | -0.02694 |
| 16 | 0.644 | -0.310 | -0.03884 | 16 | 0.644 | -0.302 | -0.03613 |
| 17 | 0.675 | -0.366 | -0. 05285 | 17 | 0.675 | -0.357 | -0.04978 |
| 18 | 0.701 | -0.450 | -0.07383 | 18 | 0.701 | -0.444 | -0.07135 |
| 19 | 0.719 | -0.581 | -0.10666 | 19 | 0.719 | -0.583 | -0.10588 |
| 20 | 0.738 | -0.742 | -0.14706 | 20 | 0.738 | -0.764 | -0.15081 |
| 21 | 0.757 | -0.848 | -0.17347 | 21 | 0.757 | -0.889 | -0.18185 |
| 22 | 0.776 | -0.944 | -0.19754 | 22 | 0.776 | -1.016 | -0.21336 |
| 23 | 0.794 | -1.002 | -0.21224 | 23 | 0.794 | -1.111 | -0.23703 |
| 24 | 0.807 | -1.012 | -0.21469 | 24 | 0.807 | -1.145 | -0.24546 |
| 25 | 0.819 | -0.991 | -0.20943 | 25 | 0.819 | -1.156 | -0.24834 |
| 26 | 0.832 | -0.938 | -0.19621 | 26 | 0.832 | -1.136 | -0.24332 |
| 27 | 0.844 | -0.829 | -0.16890 | 27 | 0.844 | -1.05R | -0.22394 |
| 28 | 0.856 | -0.692 | -0.13467 | 28 | 0.856 | -0.956 | -0.19866 |
| 29 | 0.869 | - C. 493 | -0.08477 | 29 | 0.869 | -0.771 | -0.15283 |
| 30 | 0.881 | -0.263 | -0.02715 | 30 | 0.881 | -0.552 | -0. 09842 |
| 31 | 0.894 | -0.008 | 0.03671 | 31 | 0. 894 | -0.283 | -0.03161 |
| 32 | 0.906 | 0.231 | 0. 09655 | 32 | 0.906 | -0.001 | 0. 03847 |
| 33 | 0.919 | 0.423 | 0.14459 | 33 | 0.919 | 0.261 | 0.10358 |
| 34 | 0.931 | 0.531 | 0.17158 | 34 | 0.931 | 0.447 | 0.14985 |
| 35 | 0.943 | 0.574 | 0.18229 | 35 | 0.943 | 0.541 | 0.17326 |
| 36 | 0.0 | 0.614 | 0.19224 | 36 | 0.0 | 0.595 | 0.18669 |
| 37 | 0.0 | 0.613 | 0.19194 | 37 | 0.0 | 0.594 | 0.18654 |
| 38 | 0.026 | 1.527 | 0.42019 | 38 | 0.026 | 1.274 | 0.35574 |
| 39 | 0.175 | -0.374 | -0.05470 | 39 | 0.175 | -0.531 | -0.09344 |
| 40 | 0.288 | -0.642 | -0.12166 | 40 | 0.288 | -0.709 | -0.13772 |
| 41 | 0.757 | -0.846 | -0.17250 | 41 | 0.757 | -C. 790 | -0.15790 |
| 42 | 0.819 | -1.016 | -0.21491 | 42 | 0.819 | -0.835 | -0.16918 |
| 43 | 0.050 | 0.992 | 0.28633 | 43 | 0.050 | 1.246 | 0.34900 |
| 44 | 0.100 | 0.251 | 0.10133 | 44 | 0.100 | 0.479 | 0.15800 |
| 45 | 0.150 | -0.214 | -0. 01 465 | 45 | 0.150 | -C.024 | 0.03274 |
| 46 | 0.0 | 0.612 | 0.19128 | 46 | 0.0 | 0.593 | 0.18649 |

Run No. 130 Ma = 0.8 Run No. 131 Ma = 0.8 $\alpha = 0^{\circ}$ Re_L = 4.4 · 10⁶ $\alpha = -3^{\circ}$ Re_T = 4.4 · 10⁶

Table 2-7: Pressure Data (Run 130 to 147, and 163 to 165), Test Phase 2

| 0.8 = 10 · 10 ⁶ | • | | 0.11350 | -0.02381 | -0.10251 | -0.13636 | -0.14733 | -0.14737 | -0.13116 | -0.11622 | -0.10079 | -0.07544 | -0.03503 | -0.03543 | -0.03791 | -0.04561 | -0.06117 | -0.08233 | -0.11334 | 0112110 | -0.18747 | -0.19509 | -0.19196 | -0.18249 | -0.16283 | -0-14815 | -0.04242 | 0,01160 | 0.76418 | 0.11463 | 0.14908 | 0.17383 | 0.19410 | 0.19421 | 0.48150 | -0.01658 | -0.11006 | -0.19255 | -0.28281 | 0.03834 | -0.07261 | 0.19414 |
|---------------------------------------|-----|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|---------|---------|---------|---------|---------|----------|----------|----------|----------|---------|----------|---------|
| 135 Ma = Re _L | å | | 9.000 | -0.614 | -1.386 | -1.719 | -1.827 | -1.827 | -1.667 | -1.522 | -1.371 | -1.092 | -0.50 | -0.729 | -0.753 | -0.829 | -0.982 | -1.190 | -1.494 | -1.838 | -2.22 | -2.299 | -2.269 | -2.177 | -1.983 | -1.690 | -0.798 | -0.267 | C. 269 | 6.745 | 1.084 | 1.329 | 1.528 | 1.528 | 4.354 | -0.544 | -1.463 | -2.274 | -3.161 | 1000 | -1.095 | 1.529 |
| Run No. $\alpha = 3^{\circ}$ | 5 | | 0.076 | 0.125 | 0.175 | 0.213 | 0.250 | 0.288 | 0.325 | 0, 163 | 0.400 | 0.418 | 0.525 | 0.575 | 0.613 | 0.644 | 0.675 | 0.701 | 0.719 | 757 | 0.776 | 0.794 | 0.807 | 0.819 | 0.832 | 0.844 | 0.869 | 0.881 | 0.894 | 906.0 | 0.010 | 0.963 | 0.0 | 0.0 | 0.026 | 0.175 | 0.288 | 0.757 | 0.819 | 000 | 0.150 | 0.0 |
| | | | - ~ | | 4 | 5 | 4 | 1 | œ | 0 | 2: | =: | 71 | | 15 | 16 | 11 | - 1 | 61 | 21 | 22 | 23 | 54 | 25 | 26 | 200 | 200 | 30 | 11 | 35 | 33 | 35 | 36 | 37 | 38 | 30 | 04 | 7 | 25 | 77 | 45 | 9 |
| = 0.8 = 10 · 10 ⁶ | å | | 0.23610 | 0.08173 | -0.01701 | -0.06809 | -0.09600 | -0.10954 | -0.10513 | -0.10192 | 0.04556 | -0.06889 | -0.03362 | -0.03430 | -0.03694 | -0.04359 | -0.05929 | -0.07907 | -0-11633 | -0.19355 | -0.22505 | -0.25173 | -0.26302 | -0.26685 | -0.26218 | -0.22417 | -0.17396 | -0-12009 | -0.05142 | 0. 02277 | 0.09455 | 0.17716 | 0.19484 | 0.19545 | 0.35015 | -0.10320 | -0.14895 | -0-16985 | -0.14003 | 0.15260 | 0.02268 | 0.19498 |
| 134 Ma = Re _L | đ | | 1.936 | 0.421 | -0.547 | -1.048 | -1.322 | -1.455 | -1.412 | -1,380 | 11001- | 10.00 | -0-710 | -0.717 | -0.743 | -0.808 | -0.962 | -1.156 | 175-1- | -2.279 | -2.588 | -2.849 | -2.960 | -2.998 | -2.950 | -2.579 | -2.088 | -1.559 | -0.885 | -0.157 | 0.547 | 1.357 | 1.530 | 1.535 | 3.051 | -1.393 | -1.841 | -2.04 | 3.037 | 1.116 | -0.158 | 1.530 |
| Run No. $\alpha = -3^{\circ}$ | ζ× | , , , , | 0.076 | 0.125 | 0.175 | 0.213 | 0.250 | 0.288 | 0.325 | 0,363 | 004.0 | 0.476 | 0.525 | 0.575 | 0.613 | 0.644 | 0.675 | 10.00 | 0 730 | 0.757 | 0.776 | 0.794 | 0.807 | 0.819 | 258.0 | 0.856 | 0.869 | 0.981 | 0.694 | 906-0 | 0.919 | 0.943 | 0.0 | 0.0 | 0.026 | 0.175 | 0.288 | 0.00 | 0.050 | 0.100 | 0.150 | 0.0 |
| | | | 2 | 3 | • | 5 | 91 | - ' | ac c | | 2: | 12 | 13 | 14 | 15 | 16 | - | 8 . | 200 | 21 | 22 | 23 | 54 | 23 | 97 | 28 | 53 | 30 | 31 | 32 | 35 | 35 | 36 | 37 | 38 | 96 | • | | 25 | * | 45 | 9, |
| $Ma = 0.8$ $Re_{L} = 10 \cdot 10^{6}$ | 8 | | 0.41220 | 0.02624 | -0.06280 | -0-10460 | -0.12505 | -0.13168 | -0.12237 | -0.11280 | -0.10214 | -0.07419 | -0.04522 | -0.03866 | -0.04022 | -0.04796 | -0.06303 | -0.08346 | -0.11825 | -0.16037 | -0.21105 | -0.22857 | -0.23348 | -0.23027 | -0.21725 | -0.19265 | -0.10180 | -0.04749 | 0, 01 921 | 0.08656 | 0.14207 | 0.1.384 | 10010 | 0.19984 | 0.41386 | -0.06187 | -0.13332 | -0.18570 | -0.24033 | 0.28383 | -0.02705 | 0.19914 |
| . 133 | 80 | | 3.658 | -0-123 | -0.995 | -1.404 | -1.605 | -1.670 | -1.578 | -1.484 | -1.380 | -1.106 | -0.823 | 750 | -0.774 | -0.850 | -0.998 | -1.198 | -1.539 | -1.952 | -2.447 | -2.620 | -2.669 | -2.637 | -2.509 | -2.269 | -1-438 | -0.846 | -0.192 | 0.468 | 1.012 | 1.450 | 1.578 | 1.582 | 3.682 | -0.988 | -1.690 | -2.202 | -2.739 | 20402 | -0.666 | 1.574 |
| Run No. $\alpha = 0^{\circ}$ | ۲x | | 0.026 | 0-125 | 0.175 | 0.213 | 0.250 | 0.288 | 0.325 | 0.363 | 0.400 | 0.438 | 0.475 | 0.523 | 0.613 | 0.644 | 0.675 | 0.701 | 0.719 | 0.738 | 27.0 | 0.794 | 0.807 | 0.819 | 0.832 | 0.844 | 0.850 | 0.841 | 0.894 | 906-0 | 0.919 | 0.931 | | | 0.026 | 0.175 | 0.288 | 0.757 | 0.819 | 0000 | 0.150 | 0.0 |
| 9 | | | - ^ | | • | 8 | • | _ | • | 0 | 2 | =: | 25 | 2 2 | 15 | 16 | 11 | 18 | 61 | 25 | 22 | 23 | 54 | 25 | 56 | 27 | 200 | 30 | 31 | 35 | 33 | 35 | 36 | 37 | 38 | 30 | 40 | 4 | 45 | 13 | | . 4 |
| 0.8 | 8.0 | | 0.35219 | -0.01588 | -0.09167 | -0.12265 | -0.13534 | -0.13678 | -0-12054 | -0.10693 | -0.08970 | -0.06499 | -0.03507 | 0.02560 | -0.02936 | -0.03755 | -0.05176 | -0.07176 | -0.10167 | -0.13659 | -0.17399 | -0-18023 | -0.17449 | -0.16447 | -0.14452 | -0.11339 | -0.07111 | 0.02403 | 0.07515 | 0.11904 | 0.14896 | 0.15088 | 0.18604 | 0.18592 | 0.48453 | -0.01188 | -0.09968 | -0-17984 | -0.25380 | 0.04573 | -0.06004 | 0.18584 |
| | å | | 1.257 | -6.219 | -0.523 | -0.647 | -0.698 | -0.704 | -0.639 | -0.584 | -0.515 | -0.416 | 967.0 | 0.250 | -0-273 | -0.306 | -0.363 | -0.443 | -0.563 | -0.103 | 10.853 | -0.878 | -0.855 | -0.815 | -0.735 | -0.610 | -0-401 | -0.059 | 0.146 | 0.322 | 0.442 | 0.530 | 0.591 | 0.590 | 1.788 | -0.203 | -0.555 | -0.876 | -1.173 | 0000 | -0.394 | 0.500 |
| Run No. 132 $\alpha = +3^{\circ}$ | ¥ | | 0.026 | 0.125 | 0-175 | 6.213 | 0.250 | 0.288 | 0.325 | 0,363 | 004.0 | 0.436 | 0.475 | 0.525 | 614.0 | 0.644 | 0.675 | 102.0 | 0.719 | 0.738 | 27.0 | 0.794 | 0.807 | 0.819 | 0.832 | 0.844 | 0.850 | 0.881 | 0.894 | 906.0 | 616.0 | 6 943 | 0.0 | 0.0 | 0.026 | 0.175 | 0.288 | 0.757 | 0.819 | 0.000 | 0.150 | 0.0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | | | | | 9 |

Table 2-7: (Continued)

| 9.0 | = 8.3 · 10° | 5 | 0.43287 | 0.06891 | -0.05973 | -0.06184 | -0.09319 | -0.09020 | -0.08726 | -0.06321 | -0.03664 | -0.03815 | -0.03966 | -0.04680 | -0.07837 | -0.10931 | -0.14479 | -0.19280 | -0.21389 | -0. 22135 | -0.22565 | -0.21445 | -0.20147 | -0.16645 | -0.07206 | -0.00775 | 0.06328 | 0.17435 | 0.20112 | 0,20067 | 0.30614 | -0.09213 | -0.14352 | -0.16466 | 0.30954 | 0,13204 | 0.01767 | 26661.0 |
|---------------------------------------|---|----------|-----------------------|--------------------------------|--------------------------------|-------------------------|--------------------------------|-------------------------------|---------------------------------|--------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------------------------|---------------------------------|---------------------------------|--------------------------|--------------------------------|-----------------------|---------------------------------|----------------------------|
| 139 Ma | Re_{L} | 8 | 2.572 | 0.169 | -0.680 | -0.826 | -0.905 | -0.881 | -0.862 | -0.703 | -0.528 | -0.538 | -0.548 | -0.212 | -0.803 | -1.007 | -1.242 | -1.559 | -1.700 | -1.750 | -1.77 | -1.702 | -1.617 | -1.385 | -0.762 | -0.337 | 0.132 | 0.866 | 1.043 | 1.040 | 1.737 | 441 | -1.234 | -1.373 | 1.758 | 0.586 | -0.169 | 1.053 |
| Run No. | α = -3 | x | 0.026 | 0.125 | 0.213 | 0.250 | 0.288 | 0.363 | 0.400 | 0.438 | 0.525 | 0.575 | 0.613 | 0.644 | 0.701 | 0.719 | 0.738 | 0.176 | 0. 794 | 0.807 | 0.919 | 0.844 | 0.856 | 0.869 | 0.894 | 906.0 | 0.919 | 0.943 | 0.0 | 0.0 | 0.026 | 0.173 | 0.757 | 0.819 | 0.050 | 0.100 | 0.150 | 0.0 |
| | | | 1 2 | e 4 | | • | ~ « | 0 | 01 | =: | 13 | - | 15 | 9 1 | 18 | 19 | 200 | 22 | 23 | 54 | 25 | 27 | 28 | 53 | 31 | 32 | 33 | 35 | 36 | 37 | 38 | 200 | 3 | 4.2 | 43 | * | 45 | 49 |
| 0.85 | L = 10 · 10° | å | 0.40497 | 0.08582 | -0.07393 | -0.10392 | -0-11987 | -0.10979 | -0.10453 | -0.07459 | -0.04200 | -0.03393 | -0.03581 | -0.04291 | -0.07962 | -0.11983 | -0.17255 | -0.24607 | -0.27705 | -0.28980 | -0.29340 | -0.26284 | -0.23025 | -0.17354 | -0.03569 | 0.04028 | 0.10678 | 0.17316 | 0.18975 | 0.19044 | 0.36596 | -0.10619 | -0.15000 | -0 20522 | 0.36129 | | 0.02366 | 0.18989 |
| 138 Ma = | $^{ m Re}_{ m L}$ | 90 | 4.835 | 0.525 | -1.158 | -1.474 | -1.643 | -1.538 | -1.482 | -1.166 | -0.822 | -0.737 | -0.757 | -0.832 | -1.219 | -1.643 | -2.200 | -2.917 | -3.304 | -3.438 | -3.476 | -3.153 | -2.809 | -2.210 | -0.756 | 0.045 | 0.747 | 1.447 | 1.622 | 1.632 | 3.484 | -1.500 | -2.069 | 2000 | 3.434 | 1.307 | -0.130 | 1.623 |
| Run No. | -30 | 5 | 0.026 | 0.125 | 0.213 | 0.250 | 0.288 | 0.363 | 004.0 | 0.438 | 0.475 | 0.575 | 6.613 | 0.644 | 0.701 | 0.719 | 0.738 | 0.776 | 0.794 | 0.807 | 0.819 | 0.844 | 0.856 | 0.869 | 0.894 | 906.0 | 0.919 | 0.943 | 0.0 | 0.0 | 0.026 | 0.175 | 0.757 | | 0.050 | 0.100 | 0.150 | 0.0 |
| | | | 1 2 | F 4 | • " | | - a | 00 | 10 | =: | 27 | 14 | 15 | 9 : | α. | 10 | 20 | 22 | 23 | 54 | 25 | 2.0 | 28 | 50 | 3 - | 32 | 33 | 35 | 36 | 14 | 38 | 30 | 7 | 1,7 | 63 | 44 | 45 | 46 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.85 | $R_{\rm L} = 10 \cdot 10^{9}$ | 5 | 6 0.42711 | | | | | | | | | | | | | | 9 -0.17218 | | | | | | | | | | | | | | | | | | | | | |
| . 137 Ma = 0.85 | $Re_{L} = 10$. | d O | 4.116 0.42711 | | -1.569 -0.11328 | | | | | | | | | | | | -2.189 -0.17218 | | | | | | | -1.446 -0.10150 | | 0.663 0.09908 | | | 1.674 0.19516 | | | | | | 2.734 0.29592 | | | |
| . 137 Ma = 0.85 | = 10 . | | | -0.073 | 11.5 | | -1.881 | 161-1- 626 | 0.400 | 0.438 -1.200 | 0.475 -0.860 | 0.575 -0.769 | 0.613 -0.801 | 0.644 -0.876 | 0.00 | 0.119 -1.690 | 0.738 -2.189 | 0.757 -2.523 | 0.794 -3.038 | 0.807 -3.072 | 0.819 -3.016 | 0.832 -2.826 | 0.856 -2.077 | 0.869 -1.446 | 0.881 -0.750 | 0.906 0.663 | 0.919 1.178 | 0.943 | 0.0 | 0.0 | 0.026 4.151 | 0.175 -1.070 | 0.288 -1.885 | 0.151 | 0.650 2.736 | 0.100 | 0.150 -0.669 | 0.0 1.665 |
| Run No. 137 Ma = 0.85 | $\alpha = 0^{\circ}$ Re _L = 10 · | a | 4.116 | -0.073 | 11.5 | 250 -1.789 | 0.268 -1.881 | 161-1- 626 | 0.400 | 0.438 -1.200 | 0.475 -0.860 | 0.575 -0.769 | 0.613 -0.801 | 0.644 -0.876 | 0.00 | 0.119 -1.690 | -2.189 | 0.757 -2.523 | 0.794 -3.038 | 0.807 -3.072 | 0.819 -3.016 | 0.832 -2.826 | 0.856 -2.077 | 0.869 -1.446 | 0.881 -0.750 | 0.906 0.663 | 0.919 1.178 | 0.943 | 0.0 | 0.0 | 0.026 4.151 | 0.175 -1.070 | 0.288 -1.885 | 0.151 | 0.650 2.736 | 0.100 | 0.150 -0.669 | 0.0 1.665 |
| 0.85 Run No. 137 Ma = 0.85 | $= 10 \cdot 10^{\circ} \qquad \alpha = 0^{\circ} \qquad \text{Re}_{L} = 10 .$ | a | 4.116 | 3 0.125 -0.073 | 6 0.175 -1.074 | 6 0.250 -1.789 | 7 0.268 -1.861 | 0.363 -1.656 | 10 0.400 -1.510 | 11 0.438 -1.200 | 0.475 -0.860 | 14 0.575 -0.769 | 15 0.613 -0.801 | 16 0.644 -0.876 | 0.00 | 19 0.719 -1.690 | 20 0.738 -2.189 | 21 0.757 -2.523 | 0.794 -3.038 | 24 0.807 -3.072 | 25 0.819 -3.016 | 27 0.844 -2.491 | 28 0.856 -2.077 | 29 0.869 -1.446 | 0.881 -0.750 | 32 0.906 0.663 | 33 0.919 1.178 | 35 0.943 1.538 | 36 0.0 1.674 | 37 0.0 1.667 | 38 0.026 4.151 | 39 0.175 -1.070 | 40 0.288 -1.885 | 96.5- 161.0 14 | 42 0.550 2.736 | 44 0.100 0.675 | 45 0.150 -0.669 | 46 0.0 1.665 |
| Ma = 0.85 Run No. 137 Ma = 0.85 | $10 \cdot 10^{\circ}$ $\alpha = 0^{\circ}$ $\text{Re}_{L} = 10 \cdot$ | 4/J DP | 1 0.026 4.116 | -0.02237 3 0.125 -0.073 | -0.1075 4 0.175 -1.079 | 6 0.250 -1.789 | -0.15890 7 0.208 -1.881 | -0.14043 8 0.329 -1.656 | -0.10609 10 0.400 -1.510 | -0.07509 11 0.438 -1.200 | -0.04447 12 0.475 -0.860 | -0.03488 14 0.575 -0.769 | 15 0.613 -0.801 | -0.04608 16 0.644 -0.876 | -0.06328 1/ 0.675 -1.044 | -0.12168 19 0.719 -1.690 | 20 0.738 -2.189 | -0.18791 21 0.757 -2.523 | -0.21590 23 0.794 -3.038 | -0.21171 24 0.807 -3.072 | -0.19656 25 0.819 -3.016 | -0.17225 26 0.832 -2.826 | -0.09173 28 0.856 -2.077 | -0.03472 29 0.869 -1.446 | 30 0.881 -0.750 | 0,12254 32 0,906 0.663 | 9,15090 33 0,919 1,178 | 0.16355 34 0.931 1.538 | 36 0.0 1.674 | 0.18931 37 0.0 1.667 | 0.49737 38 0.026 4.151 | -0.01885 39 0.175 -1.070 | -0.12046 40 0.288 -1.885 | 0.20750 -1.20 1.20 | 42 0.550 2.736 | 0.0624 44 0.100 0.675 | -0.07429 45 0.150 -0.669 | 0.18836 46 0.0 1.665 |
| . 136 Ma = 0.85 Run No. 137 Ma = 0.85 | $= 10 \cdot 10^{\circ} \qquad \alpha = 0^{\circ} \qquad \text{Re}_{L} = 10 .$ | 40 VX 43 | 0,36060 1 0,026 4,116 | -0.014 -0.02237 3 0.125 -0.073 | -1.512 -0.10775 4 0.175 -1.079 | -0.15876 6 0.250 -1.789 | -2.049 -0.15890 7 0.288 -1.881 | -1.856 -0.14043 8 0.325 -1.73 | -1,495 -0,10609 10 0,400 -1,510 | -0.07509 11 0.438 -1.200 | -0.847 -0.04447 12 0.475 -0.860 | -0.746 -0.03488 14 0.575 -0.769 | -0.790 -0.03904 15 0.613 -0.801 | -0.864 -0.04608 16 0.644 -0.876 | -1.280 -0.06328 1/ 0.673 -1.286 | -1.660 -0.12168 19 0.719 -1.690 | -0.16249 20 0.738 -2.189 | -2.357 -0.18791 21 0.757 -2.523 | -2.571 -0.2081/ 22 0.716 -3.038 | -2.607 -0.21171 24 0.807 -3.072 | -2.448 -0.19656 25 0.819 -3.016 | -2.193 -0.1725 26 0.832 -2.826 | -1.345 -0.09173 28 0.856 -2.077 | -0.745 -0.03472 29 0.869 -1.446 | -0.136 0.02306 30 0.881 -0.750 | 0.912 0.17254 32 0.906 0.663 | 1.209 0.15090 33 0.919 1.178 | 1.343 0.16355 34 0.931 1.443 | 1.609 0.18867 36 0.0 1.674 | 1.617 0.18931 37 0.0 1.667 | 4.867 0.49737 38 0.026 4.151 | -C.578 -0.01885 39 0.175 -1.070 | -1.649 -0.12046 40 0.288 -1.885 | -2.567 -0.20750 41 0.151 | -3.630 -0.30851 42 0.650 2.736 | 0.007 | -1.162 -0.07429 45 0.150 -0.669 | 1.606 0.18836 46 0.0 1.665 |

Table 2-7: (Continued)

| 0.5 = 7.4 · 10 ⁶ | 8 | 0.35225 | 0.01614 | -0.05507 | -0.08885 | -0.10397 | -0.10935 | -0.10367 | -0.00047 | -0.06643 | -0.04575 | -0, 03952 | -0.04033 | -0.04198 | -0.04.805 | -0.06084 | -0-10401 | -0.13396 | -0.15272 | -0.16939 | -0.18395 | -0.18615 | -0.18459 | -0.17795 | 20701-0- | -0.10628 | -0.06374 | -0.01108 | 0.04739 | 0.10752 | 0.12000 | 0.20291 | 0.20189 | 0.35841 | -0.05439 | -0.11138 | -0.15240 | -0.19570 | 0.23390 | 0.07000 | 0 20200 | 0.5050 |
|--|----------|----------------------------|-----------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------------|------------------------------|------------------------------|--------------------------|----------------------------|------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------------|-------------------------------|---------------------------------|-----------|
| 143 Ma = Re _L | 8 | 1.513 | -0.144 | -0.495 | -0.661 | -0.736 | -0.762 | -0.734 | 10, 00 | -0.551 | -0.449 | -0.41R | -0.422 | -0.430 | -0.460 | -0.523 | -0.736 | -0.883 | -0.976 | -1.058 | -1.129 | -1.139 | -1.132 | -1.100 | -1.02 | -0.747 | -0.537 | -0.278 | 0.010 | 0,306 | 0.049 | 0.176 | 0.771 | 1.541 | 165.0- | -0.772 | -0.973 | -1.186 | 0.928 | 0.126 | 0.336 | |
| Run No. $\alpha = 0^{\circ}$ | ¥ | 0.026 | 0.076 | 6.175 | 0.213 | 0.250 | 0.288 | 0.325 | 0.400 | 0.438 | 0.475 | 0.525 | 0.575 | 0.613 | 0.644 | 6.675 | 0.719 | 0.738 | | | | | | | | | | | | | | | | 0.026 | | | | | | | | |
| 9 | | - | 2 6 | 4 | 5 | • | - ' | œ (| , | 2: | 12 | 13 | 14 | 15 | 91 | -: | 20 | 202 | 21 | 22 | 23 | 54 | 52 | 56 | 200 | 200 | 30 | 31 | 32 | 33 | | 3,4 | 37 | 38 | 30 | 04 | 7 | 24 | 43 | 3 . | 4, | 10 |
| = 0.5 = 7.3 · 10 | 5 | 0.28852 | -0.03052 | -0.09101 | -0.11719 | -0.12536 | -0.12475 | -0.11266 | 06701-0- | -0.06682 | -0.04499 | -0.03796 | -0.03772 | -0.03955 | -0.04505 | -0.05748 | -0.00547 | -0.12117 | -0.13688 | -0.14877 | -0.15544 | -0.15287 | -0.14688 | -0.13545 | 0.11340 | -0.05419 | -0.01265 | 0.03521 | 0,08182 | 0.12953 | 19091 | 51001 | 0.19864 | 0.42435 | -0.01394 | -0.08913 | -0.16137 | -0.22893 | 0.17205 | 0.02035 | -0.06895 | 1004 1 *0 |
| 142 Ma = Re _L | 8 | 1.196 | 0.191 | -0.670 | -0.799 | -0.839 | -0.836 | -0.777 | -0. 120 | 10.0 | -0.444 | -0.409 | -0.408 | -0-417 | -0.444 | -0.505 | 00000 | -0.818 | -0.895 | -0.954 | -0.986 | -0.974 | -0.944 | -0.888 | -0.192 | 0.4.0 | -0.285 | -0.050 | 0.179 | 0.413 | 0.567 | 0.00 | 0.753 | 1.862 | -0.291 | -0.661 | -1.016 | -1.350 | 0.623 | -0.123 | -0.562 | 0. (32 |
| Run No. α = 3 ⁰ | \$ | 0.026 | 0.076 | 0.175 | 0.213 | 0.250 | 0.288 | 0.325 | 0.363 | | 675 | 0.525 | 0.575 | 0.613 | 0.644 | 0.675 | 10.00 | 0.738 | 0.757 | 0.176 | 0.794 | 0.807 | 0.819 | 0.832 | 0.844 | 0.869 | 0.881 | 0.894 | 906.0 | 0.919 | 166.0 | | 0.0 | 0.026 | 0.175 | 0.288 | 0.757 | 0.819 | 0.050 | 0.100 | 0.150 | 5.5 |
| | | - | ~ = | • | 8 | • | - | 6 0 (| | : | :: | 13 | 1.4 | 15 | 16 | -: | 9 0 | 202 | 21 | 22 | 23 | 54 | 52 | 56 | 200 | 200 | 30 | 31 | 32 | 33 | | 36 | 31 | 38 | 30 | 40 | 7 | 75 | 43 | :: | : | • |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $Ma = 0.6$ $Re_{L} = 8.3 \cdot 10^{6}$ | 8 | 45 0.30024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| . 141 Ma = 0.6 Re _L = 8.3 · 10 | ê, | | -0.481 -0.02980 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.594 0.43771 | | | | | | | | |
| Ma = 0.6 Re _L = 8.3 · 10 | | 1.692 | | -0.906 | -1.089 | -1.142 | -1.142 | -1.059 | 2000 | -0.730 | -0.587 | -0.540 | -0.539 | -0.549 | -0.589 | -0.672 | 10.043 | -1.124 | -1.230 | -1.313 | -1.361 | -1.355 | -1.299 | -1.220 | -1.086 | -0.654 | -0.357 | -0.019 | 0.313 | 0.605 | 0.184 | 1.023 | 1.021 | 2.594 | -0.387 | -0.902 | -1.390 | -1.871 | 0.901 | -0.130 | -0.140 | 120-1 |
| Run No. 141 Ma = 0.6 $\alpha = 3^{\circ}$ Re _L = 8.3 · 10 | å | 1.692 | 0.306 | -0.906 | -1.089 | -1.142 | -1.142 | -1.059 | 0.363 | 0.430 | 0.474 | 0.525 -0.540 | 0.575 -0.539 | 0.613 -0.549 | 0.644 -0.589 | 0.675 -0.672 | 10.043 | 0.738 -1-124 | 0.757 -1.230 | 0.776 -1.313 | 0.794 -1.361 | 0.807 -1.355 | 0.819 -1.299 | 0.832 -1.220 | 0.844 | 0.869 | 0.881 -0.357 | 0.894 -0.019 | 0.906 0.313 | 0.919 0.605 | 0.931 | 0.0 | 0.0 | 2.594 | 0.175 -0.387 | 0.288 -0.902 | 0.757 -1.390 | 0.819 -1.871 | 0.050 0.907 | 0.100 -0.130 | 0.150 -0.746 | 170-1 |
| 0.6 Run No. 141 Ma = 0.6 = $8.3 \cdot 10^6$ $\alpha = 3^\circ$ Re _L = $8.3 \cdot 10$ | å | 1 0.026 1.692 | 0.306 | 4 0.175 -0.906 | 5 0.213 -1.089 | 6 0.250 -1.142 | 7 0.288 -1.142 | 6 0.325 -1.059 | 00 0 00 00 | 11 0.430 | 12 0.474 -0.587 | 13 0.525 -0.540 | 14 0.575 -0.539 | 15 0.613 -0.549 | 16 0.644 -0.589 | 17 0.675 -0.672 | 10 0 110 0 01 | 20 0.738 -1.124 | 21 0.757 -1.230 | 22 0.776 -1.313 | 23 0.794 -1.361 | 24 0.807 -1.355 | 25 0.819 -1.299 | 26 0.832 -1.220 | 20 0 054 | 29 0.869 -0.654 | 30 0.861 -0.357 | 31 0.894 -0.019 | 32 0.906 0.313 | 33 0.919 0.605 | 34 0.431 0.789 | 34 0.0 | 37 0.0 1.021 | 38 0.026 2.594 | 39 0.175 -0.387 | 40 0.288 -0.902 | 41 0.757 -1.390 | 42 0.819 -1.871 | 43 0.050 0.907 | 0.100 -0.130 | 45 0.150 -0.146 | 170-1 |
| 140 Ma = 0.6 Run No. 141 Ma = 0.6 Re _L = 8.3 · 10 ⁶ α = 3 ^o Re _L = 8.3 · 10 | eq Vx | 0,36660 1 0.026 1.692 | 3 0.125 -0.481 | -0.05754 4 0.175 -0.906 | -0.09314 5 0.213 -1.089 | -0.10898 6 0.250 -1.142 | -0.11462 7 0.288 -1.142 | -0.10732 8 0.325 -1.059 | -0.10043 9 0.363 -0.984 | -0 -0-00 11 0-438 -0-739 | -0 04674 12 0.474 -0.587 | -0.03985 13 0.525 -0.540 | -0.04061 14 0.575 -0.539 | -0.04251 15 0.613 -0.549 | -0.04815 16 0.644 -0.589 | -0.06203 17 0.675 -0.672 | 0.0000 10 0.0000 | -0.13899 20 0.738 -1.124 | -0.15965 21 0.757 -1.230 | -0.17762 22 0.776 -1.313 | -0.19145 23 0.794 -1.361 | -0.19575 24 0.807 -1.355 | -0.19362 25 0.819 -1.299 | -0.18477 26 0.832 -1.220 | -0.16853 27 0.844 -1.086 | -0.10889 29 0.869 -0.654 | -0.06284 30 0.881 -0.357 | -0.00671 31 0.894 -0.019 | 0.05662 32 0.906 0.313 | 0,11708 33 0,919 0,605 | 0.16374 34 0.431 0.184 | 0.18747 57 0.45 0.00 | 0.20253 37 0.0 1.021 | 0.37143 38 0.026 2.594 | -0.05651 39 0.175 -0.387 | -0.11406 40 0.288 -0.902 | -0.15823 41 0.757 -1.390 | 42 0.819 -1.871 | 0.24377 43 0.050 0.907 | 0.07572 44 0.100 -0.130 | 0.02763 45 0.150 -0.746 | 170-1 |
| Ma = 0.6 Run No. 141 Ma = 0.6 Re _L = 8.3 · 10 ⁶ α = 3 ^o Re _L = 8.3 · 10 | 40 VX d3 | 2,135 0,3660 1 0.026 1.692 | 0.01726 3 0.076 0.306 | -0.666 -0.05754 4 0.175 -0.906 | -0.901 -0.09314 5 0.213 -1.089 | -1.005 -0.10898 6 0.250 -1.142 | -1.045 -0.11462 7 0.288 -1.142 | -0.995 -0.10732 8 0.325 -1.059 | -0.949 -0.10043 9 0.363 -0.964 | 10.10 | -0.541 -0.5474 12 0.474 -0.587 | -0.549 -0.03985 13 0.525 -0.540 | -0.554 -0.04061 14 0.575 -0.539 | -0.566 -0.04251 15 0.613 -0.549 | -0.604 -0.04815 16 0.644 -0.589 | -0.695 -0.06203 17 0.675 -0.672 | -0.803 -0.07862 10 0.719 -0.963 | -1.204 -0.14899 20 0.748 -1.124 | -1.340 -0.15965 21 0.757 -1.230 | -1.460 -0.17782 22 0.776 -1.313 | -1.550 -0.19145 23 0.794 -1.361 | -1.577 -0.19575 24 0.807 -1.355 | -1.563 -0.19362 25 0.819 -1.299 | -1.505 -0.18477 26 0.832 -1.220 | -1.398 -0.16853 27 0.844 -1.088 | -1.004 -0.10889 29 0.869 -0.654 | -0.700 -0.06284 30 0.881 -0.357 | -0.330 -0.00671 31 0.894 -0.019 | 0.088 0.05662 32 0.906 0.313 | 0.487 0.11708 33 0.919 0.605 | 0.795 0.16374 34 0.431 0.789 | 1.050 1.050 36 0.0 1.053 | 1.051 0.20253 37 0.0 1.021 | 2.166 0.37143 38 0.026 2.594 | -0.659 -0.05651 39 0.175 -0.387 | -1.039 -0.11406 40 0.288 -0.902 | -1.330 -0.15823 41 0.757 -1.390 | -1.638 -0.20478 42 0.819 -1.871 | 1.323 0.24377 43 0.050 0.907 | 0.214 0.07572 44 0.100 -0.130 | -0.468 -0.02763 45 0.150 -0.746 | 170-1 |

Table 2-7: (Continued)

| 147 Ma = 0.8 | $Re_{L} = 15 \cdot 10^{6}$ | 90 | | | | | | | | | | | | | | | | | | | | | | | | -3.254 -0.17230 | | | | | | | | 2.560 0.20448 | | | | | | | 2.779 0.21889 | | 2.546 0.20185 | |
|--------------|----------------------------|----|---------|---------|---------|----------|----------|----------|----------|----------|----------|------------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------------|----------|----------|----------|----------|----------|---------|---------|---------------|---------|----------|----------|----------|----------|----------|---------------|---------|---------------|---------|
| | a = 3° | ٧× | , , , , | 0.020 | 3 0.125 | 4 0.175 | 5 0.213 | 6 0.250 | 7 0.288 | 8 0.325 | 9 0.363 | 00.400 | 2 0 475 | 1 0.525 | 4 0.575 | 5 0.613 | 6 0.644 | 7 0.675 | | | | | | | | | | | | | | | | | | | | | | | | | 0.0.0 | |
| 8.0 | = 15 · 10 ⁶ | 83 | | 0.48430 | 0.23494 | -0.01917 | -0.07085 | -0.09797 | -0.11331 | -0.10694 | -0.10414 | -0.10120 | -0,07093 | -0.04172 | -0.02943 | -0.04065 | -0.04817 | -0.06286 | | | | | | | | | | | | -0.06410 | | | | | | | | | | | | | 0.02503 | |
| . 146 Ma = | Re_{L} | dū | | 6.895 | 3.032 | 0.000 | 1 603 | -2.112 | -2.349 | -2.251 | -2.207 | -2.161 | -1.694 | -1.243 | -1.207 | -1.226 | -1.342 | -1.569 | -1.885 | -2.472 | -3.203 | -3.682 | 261.4- | 790 | -4.873 | -4.806 | -4.545 | -4.274 | -3.514 | -1.587 | -0.387 | 0.197 | 1.742 | 2.241 | 2.583 | 4.736 | -2.232 | -2.961 | -3.292 | -3.726 | 4.813 | 1.766 | 212-0- | 016.3 |
| Run No. | α = -30 | ٧x | | 0.026 | 2 0.076 | 9 0.125 | 6 0 213 | 6 0.250 | 7 0.288 | 8 0.325 | 9 0.363 | 00000 | 0.438 | 0.475 | 2000 | 6 0.613 | 9 0.644 | 7 0.675 | 8 9.701 | | | | | | | 6 0.832 | | | | | | | | | | | | | | | 43 0.050 | | 65 0.150 | 0.0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | • | • | • | | | | |
| 8.0 | = 15 · 10 ⁶ | 9 | | 0.41796 | 0.17022 | 0.02371 | 10001 | -0.12713 | -0-13475 | -0.12440 | -0,11621 | -0.10692 | -0.07558 | -0.04607 | 2000 | -0.04524 | -0.05136 | -0.06735 | -0.08679 | -0.12267 | -0.16527 | -0.19072 | -0.21503 | 47457-0- | -0.24122 | -0.22676 | -0.20170 | -0.17414 | -0.11921 | -0.05400 | 0.08169 | 0.14152 | 0.17993 | 0,19578 | 0.21001 | 0.40466 | -0.06460 | -0.13767 | -0.19026 | -0.25387 | 0.28307 | 0.09491 | -0.02292 | 0.21051 |
| . 145 Ma = | $^{ m Re}_{ m L}$ | 8 | | 5.822 | 2.025 | -0.201 | 2 202 | -7.553 | -2.668 | -2.510 | -2.384 | -2.241 | -1.759 | -1.306 | 1777 | -1.203 | -1.387 | -1.613 | -1.932 | -2.485 | -3.142 | -3.532 | -3.907 | 107.4- | 14.390 | -4.088 | -3.703 | -3.274 | -2.430 | -1.504 | 0.661 | 1.583 | 2.174 | 2.417 | 2,636 | 5.632 | -1.590 | -2.714 | -3.523 | -4.502 | 3,761 | 0.864 | -0.949 | 140.7 |
| Run No. | α = 0 ₀ | ۲× | | 1 0.026 | 2 0.076 | 4 0.125 | 0.173 | 0.250 | 7 0.288 | 8 0.325 | 9 0.363 | 004.0 | 1 0.438 | 2 0.475 | 626.0 | • | | | | | | | | | | 6 0.832 | | | | 0.881 | | | | | 0.0 | | | | | | | | 45 0.150 | |
| Ma = 0.5 | = 7.4 · 10 ⁶ | 5 | | 0.41726 | 0.19771 | 0.06649 | 0.0143 | -0.07798 | -0-08005 | -0.08694 | 98559 | -0.08278 1 | -0.06059 | -0.04.060 | | -0.03038 | | | -0.07639 | | | | | | | -0.21284 | | | | | -0.01320 | | 0.12279 | | | 0.29323 | | | | | | 12628 | | 18002 |
| | Re_{L} | å | | 1.831 | 0.750 | 0.104 | 67.0- | -0-607 | 1990- | -0.651 | -0.644 | -0.631 | -0.521 | -0.423 | 104.0- | -0.400 | -0.450 | -0.518 | -0.599 | -0.746 | -0.909 | -1.025 | -1.130 | -1.225 | 1971- | -1.270 | -1.229 | -1.166 | -1.017 | -0.829 | -0.288 | 0.050 | 0.181 | 0.613 | 0.164 | 1.218 | 0.669 | -0.847 | -0.891 | -0.989 | 1.236 | 0.398 | -0.131 | 0. 104 |
| Run No. 144 | a = -3° | ۲x | | 1 0.026 | 2 0.076 | 3 0.125 | 51.0 | 6 0.250 | 7 0.298 | 8 0.325 | 9 0.363 | 10 0.400 | 11 0.418 | 12 0.475 | 624.0 | 515.0 | 14 0.644 | | | | | | | | 25 0.807 | | | | | 30 0.881 | | | | | | 38 0.024 | | | | | | | 45 0.150 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 2-7: (Continued)

| $a = 0.800$ $^{2}L = 10 \cdot 10^{6}$ | d D | 0,34863 0,10822 -0,02657 -0,10181 | -0.13627 -0.14779 -0.14677 -0.13250 | -0.11761 -0.09926 -0.07714 -0.0410 | -0.03432 -0.03585 -0.03819 -0.05604 | -0.06083 -0.08162 -0.11252 -0.15146 | -0, 19082 -0, 1955 -0, 1955 -0, 1863 -0, 1863 -0, 0936 | 0,00942 0,00942 0,06672 0,11558 0,15155 0,16919 0,19692 | 0, 19672 0, 4872 -0, 01760 -0, 11201 -0, 19490 0, 21497 0, 03787 0, 19431 |
|---|----------|--|--|---|--|--|---|---|--|
| 165 Ma Re _L | de | 3.039 0.681 -0.641 | -1.830 | -1.534 -1.354 -1.137 -0.813 | -0.717 | -0.977 -1.181 -1.484 -1.966 -2.079 | -2.252 -2.329 -2.298 -2.208 -2.018 -1.118 | -0.834 -0.288 0.274 0.763 0.163 1.279 1.345 | 1.549 -0.5413 -1.479 -2.292 -3.154 -0.006 -1.066 |
| Run No. $\alpha = 3^{\circ}$ | , | 0.026 0.076 0.125 | 0.250 0.288 0.388 | 0.363 0.400 0.438 | 0.525 0.575 0.613 | 0.675 0.719 0.738 0.738 | 0.776 0.794 0.807 0.819 0.844 0.856 | 0.869 0.881 0.994 0.919 0.943 | 0.026 0.125 0.288 0.757 0.757 0.050 0.150 |
| | | 0 = 4 | | 12 110 9 | E 41 13 13 13 13 13 13 13 13 13 13 13 13 13 | 17 20 20 21 21 | 3783533 | 2 E E E E E E E | WWW.4444444444 |
| $Ma = 0.801$ $Re_{L} = 10 \cdot 10^{6}$ | 5 | 0.48142 0.23046 0.07720 | -0.07158 -0.10069 -0.11433 | -0.10160 -0.09407 -0.07453 -0.0404 | -0, 03250 -0, 03474 -0, 03637 | -0.05764 -0.07820 -0.11453 -0.16338 | -0.22739 -0.25466 -0.26565 -0.27013 -0.26525 -0.24835 | -0,17579 -0,11860 -0,05031 0,02632 0,09949 0,17764 | 0,19779 0,3553 -0,10252 -0,14903 -0,11909 -0,19248 0,19248 0,15230 0,02367 |
| | 8 | 1.884 | -1.984 | -1.379 -1.305 -1.113 -0.778 | - 0, 700 - 0, 722 - 0, 738 - 0, 807 | -0.947 -1.149 -1.506 -1.986 -2.300 | -2.615 -2.683 -2.991 -3.035 -2.987 -2.821 | -2.108 -1.546 -0.875 -0.122 0.122 1.141 1.365 | 1,563 3,113 -1,388 -2,052 -2,052 -2,272 3,004 1,116 1,561 |
| Run No. 164 $\alpha = -3^{\circ}$ | ۲× | 1 0.026 2 0.076 3 0.125 | 5 0.213 6 0.250 7 0.288 8 0.325 | | | | | | 337 0.00 338 0.026 40 0.288 41 0.288 43 0.050 44 0.100 45 0.0 |
| $Ma = 0.804$ $Re_{L} = 10 \cdot 10^{6}$ | 8 | 0.41188 | -0,10665 -0,12351 -0,13031 -0,12239 | | | | | | 0,20071 0,42265 -0,65144 -0,13305 -0,1867 -0,24031 0,27770 0,09213 0,20781 |
| | 40 | 3.675 | -1.596 | -1.484 | -0.729 | -0.994 -1.192 -1.532 -1.962 | -2.479 -2.653 -2.666 -2.532 -2.288 | -1.439 -0.834 -0.162 0.502 1.350 1.472 | 1. 596 3. 781 -0. 985 -1. 690 -2. 208 -2. 746 2. 354 0. 527 1. 597 |
| Run No. 163 $\alpha = 0^{\circ}$ | ¥ | 0.026 0.076 0.125 | C.213 C.288 C.288 | 0.363 0.400 0.438 0.475 | 0.525 0.575 0.613 | 0.701 0.701 0.738 0.738 | 0.93 0.83 0.85 0.85 | 0.0000 0.0000 0.0000 0.0000 0.0000 | 0.026 0.175 0.757 0.757 0.0819 0.150 |

Table 2-7: (Concluded)

Table: 2-8 Drag Data for Complete Model (Shape 3) at Zero Incidence (Test Phase 2)

| Run | α | Ma | P ₀ | $^{\mathrm{C}}_{\mathrm{X}}$ $^{\mathrm{C}}_{\mathrm{B}}$ | CXcorr |
|------|---|-------|----------------|---|--------|
| 130 | 0 | 0,8 | 300 | 0,0623 - 0,0128 | 0,0751 |
| 133 | 0 | 0,80 | 735 | 0,0531 - 0,0133 | 0,0664 |
| 137 | 0 | 0,85 | 735 | 0,0541 - 0,0129 | 0,067 |
| 1 40 | 0 | 0,60 | 735 | 0,0536 -0,0135 | 0,0671 |
| 1 43 | 0 | 0,50 | 735 | 0,0555 - 0,0135 | 0,0690 |
| 1 45 | 0 | 0,80 | 1152 | 0,0493 - 0,0140 | 0,0633 |
| 163 | 0 | 0,804 | 734 | 0,0503 - 0,0134 | 0,0637 |

MEASUREMENTS ON MRB-BODY-DF-REVOLUTION POSITION OF WALL STATIC PRESSURE REL. TO MODEL APEX

XBM (CM)

 -20.70
 -18.34
 -15.93
 -6.32
 -3.83
 -1.37

 5.35
 10.58
 13.16
 22.53
 25.37
 27.57

 36.88
 39.37
 41.86
 51.31
 53.70
 56.27

 65.59
 68.11
 70.54
 79.94
 82.48
 84.94

CONSTANTS & CALIBRATION

REFERENCE AREA S = 112.81 CM**2 CHORD LENGTH L = 93.00 CM

CAL-OF PRESS.TRD. AP = 93.25 MMWS/VOLT CAL-OF CHORD FORCE AX = 0.5868 VOLT/KP

Table 2-9: Calibration and Geometrical Data, Test Phase 3

MEASUREMENTS ON MBB-BODY-OF-PEVOLUTION

RESULTS RUN NO 89 A) FORCE MEASUREMTS. CX CPI MA REL CXCORR 0.80050 0.552E 07 0.552E 07 0.0 0.0 0.80050 B) STATIC WALL PRESSURE CPWALL X/L 0.0049 -0.2587 -0.2292 0.0018 -0.0790 -0.0479 -0.0171 0.0731 0.1372 0.1645 0.2816 0.3446 0.4610 0.4921 0.6712 0.6712 0.7034 0.8514 0.8514 0.8817 0.9992 0.0054 0.0029 0.0060 0.0028 0.0047 0.0003 0.0039 -0.0008 0.0115 0.0066 -0.0020 0.0059 0.0061 0.0163 0.0165 0.0121 0.0144 0.0160 1.0617 0.0113

AVERAGE CPA = 0.00788 AVARAGE SCATTER AS = 0.00606

Table 2-10: Force and Pressure Data, Test Phase 3 (Run 89 to 100)

MEASUREMENTS ON MBB-BODY- 3F-REVOLUTION RESULTS RUN NO 90 A) FORCE MEASUREMTS. CX CXCDER CPI MA REL 0.0 0.80019 0.812E 07 0.811E 07 B) STATIC WALL PRESSURE X/L CPWALL -0.2587 -0.2292 -0.1991 -0.0790 -0.0479 -0.0171 0.0731 0.0006 -0.0006 0.0031 -0.0018 0.0046 0.0731 0.1322 0.1645 0.2816 0.3134 0.4610 0.4921 0.5232 0.6414 0.6712 0.7034 0.0024 -0.0037 -0.0025 -0.0116 0.0123 0.0100 0.0026 0.0037 0.0041 0.7534 0.8199 0.8514 0.8817 0.9992 1.0310 0.0100 0.0082 0.0134 0.0124 0.0087 1.0617

AVARAGE SCATTER AS = 0.00674

Table 2-10: (Continued)

AVERAGE CPA = 0.00441

-

MEASUREMENTS ON MEB-BODY-OF-REVOLUTION

RESULTS RUN NO 91

A) FORCE MEASURENTS. CX CXCORR CP1 MA REL

0.0
0.0
0.80050 0.995E 07
0.80050 0.994E 07

H) STATIC WALL PRESSURE

AVFRAGE CPA = 0.00341

AVARAGE SCATTER AS = 0.00769

Table 2-10: (Continued)

MEASUREMENTS ON MBB-BOCY-JF-REVOLUTION

RESULTS RUN NO 92

A) FORCE MEASUREMTS. CX CXCORR CPI MA REL

0.0 0.80003 0.135E 08
0.0 0.80065 0.135E 08

B) STATIC WALL PRESSURE

X/L CPWALL

-0.2587 -0.0063
-0.2292 -0.0059
-0.1991 -0.0038
-0.0790 0.0009
-0.0171 0.0039
-0.0731 -0.0061
0.1327 -0.0065
0.1645 -0.0140
0.2816 -0.0090
0.3134 -0.0154
0.3446 0.0104
0.4610 0.0132
0.4921 0.0011
0.5232 0.0020
0.6414 -0.0034
0.6712 0.0005
0.7034 0.0179
0.8199 0.0050
0.8514 0.0028
0.8817 0.0028
0.8817 0.0028
0.8817 0.0028
0.8817 0.0028

AVERAGE CPA = 0.00075

AVARAGE SCATTER AS = 0.00874

Table 2-10: (Continued)

MEASUREMENTS ON MEB-BODY- OF-REVOLUTION

RESULTS RUN NO 97

| A) FORCE MEASUREMTS. CX | CXCORR | CPI | MA | REL |
|-------------------------|----------|----------|---------|-----------|
| -0.07205 | -0.04295 | -0.02911 | 0.80142 | 0.540E 07 |
| -0.07209 | -0.04290 | -0.02919 | 0.80126 | 0.540E 07 |

B) STATIC WALL PRESSURE

| X/L | CPWALL |
|---------|---------|
| -0.2587 | 0.0080 |
| -0.2292 | 0.0050 |
| -0.1991 | 0.0047 |
| -0.0790 | 0.0100 |
| -0.0479 | 0.0068 |
| -0.0171 | 0.0108 |
| 0.0731 | 0.0041 |
| 0.1322 | 0.0091 |
| 0.1645 | 0.0023 |
| 0.2816 | 0.0053 |
| 0.3134 | -0.0071 |
| 0.3446 | 0.0269 |
| 0.4610 | 0.0126 |
| 0.4921 | 0.0073 |
| 0.5232 | 0.0005 |
| 0.6414 | 0.0050 |
| 0.6712 | 0.0042 |
| 0.7034 | 0.0071 |
| 0.8199 | 0.0069 |
| 0.8514 | 0.0008 |
| 0.8817 | 0.0083 |
| 0.9992 | 0.0099 |
| 1.0310 | 0.0094 |
| 1.0617 | 0.0066 |

AVERAGE CPA = 0.00714 AVARAGE SCATTER AS = 0.00592

Table 2-10: (Continued)

MEASUREMENTS ON MEB-BODY-OF-REVOLUTION

FESULTS RUN NO 98

| A) FORCE MEASUREMTS. CX | CXCORE | CPI | МД | REL |
|-------------------------|----------|----------|---------|-----------|
| -0.06688 | -0.03619 | -0.03070 | 0.80111 | 0.825F 07 |
| -0.06699 | -0.03639 | -0.03060 | 0.80080 | 0.825E 07 |

B) STATIC WALL P

| PRESSURE | | | |
|----------|---------|--|--|
| X/L | CPAALL | | |
| -0.2587 | 0.0030 | | |
| -0.2292 | 0.0008 | | |
| -0.1991 | 0.0064 | | |
| -0.0790 | 0.0080 | | |
| -0.0479 | 0.0035 | | |
| -0.0171 | 0.0129 | | |
| 0.0731 | 0.0024 | | |
| 0.1322 | 0.0037 | | |
| 0.1645 | 0.0027 | | |
| 0.2816 | 0.0042 | | |
| 0.3134 | -0.0135 | | |
| 0.3446 | 0.0317 | | |
| 0.4610 | 0.0102 | | |
| 0.4921 | 0.0053 | | |
| 0.5232 | 0.0002 | | |
| 0.6414 | 0.0006 | | |
| 0.6712 | 0.0020 | | |
| 0.7034 | 0.0068 | | |
| 0.8199 | 0.0043 | | |
| 0.8514 | -0.0021 | | |
| 0.8817 | 0.0042 | | |
| 0.9992 | 0.0078 | | |
| 1.0310 | 0.0069 | | |
| 1.0617 | 0.0035 | | |
| | | | |

AVERAGE CPA = 0.00503 AVARAGE SCATTER 45 = 0.00756

Table 2-10: (Continued)

```
MEASUREMENTS ON MAH-BODY-OF-REVOLUTION
RESULTS RUN NO. 99
A) FORCE MEASUREMTS. CX
                                   CXCORR
                                                  Col
                                                                   MA
                                                                               REL
                    -0.06290 -0.03322 -0.02968
-0.06300 -0.03293 -0.03007
                                                               0.80034
                                                                              0.100E 08
0.100E 08
                                                               0.80050
BI STATIC WALL PRESSURE
                                  CPWALL
                   -0.25R7
                                 -0.0004
                   -0.2292
-0.1991
-0.0790
                                 -0.0018
                                  0.0041
                                  0.0006
0.0104
0.0011
0.0013
                   -0.6479
-0.0171
```

-0.0171 0.0104
0.0731 0.0013
0.1322 0.0013
0.1322 0.0013
0.1645 0.0006
0.2816 -0.0039
0.3134 -0.0159
0.4610 0.0128
0.4921 0.0073
0.5232 -0.0065
0.6414 -0.0004
0.6712 0.0001
0.7034 0.0154
0.8199 0.0029
0.8514 -0.0028
0.8817 0.0060
0.9992 0.0060
1.0310 0.0075

AVERAGE CPA = 0.00316

AVARAGE SCATTER AS = 0.00771

Table 2-10: (Continued)

| MEASUREMENTS | ON | MBB-BODY-OF-REVOLUTION |
|--------------|----|------------------------|

RESULTS RUN NO 100

A) FORCE MEASUREMTS. CX CXCORR CPI MA REL
-0.05718 -0.02794 -0.02924 0.80050 0.140E 08
-0.05683 -0.02806 -0.02877 0.80065 0.140E 08

B) STATIC WALL PRESSURE

X/L CPWALL

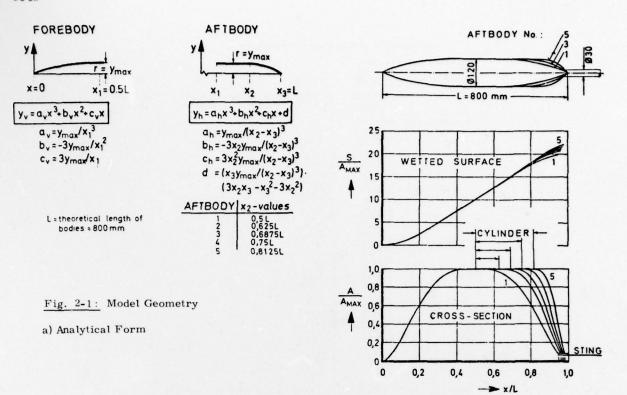
-0.2597 -0.0045
-0.2292 -0.0098
-0.1991 0.0036
-0.0790 0.0027
-0.0479 -0.0102
0.0731 -0.0033
0.1322 -0.0102
0.1645 -0.0047
0.2816 -0.0027
0.3134 -0.0235
0.3446 0.0259
0.4610 0.0157
0.4921 0.0041
0.5232 0.0035
0.6414 -0.0052
0.6712 -0.0053
0.7034 0.0138
0.8199 0.0006
0.8514 -0.0054
0.8817 0.0033
0.9992 0.0055
1.0310 0.0047
1.0617 0.0001

AVERAGE CPA = 0.00066

and was been all the district the same and t

AVARAGE SCATTER AS = 0.00985

Table 2-10: (Concluded)



- b) Shape of Aftbody 1, 3, and 5
- c) Wetted Surface and Cross Section Distribution

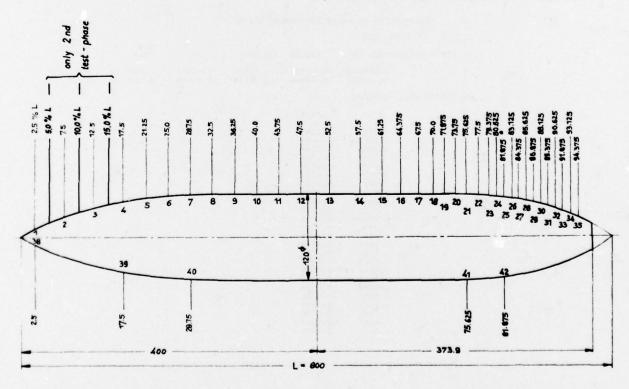


Fig. 2-2: Position of Pressure Orifices (5%, 10%, 15% L only during Test Phase 2)

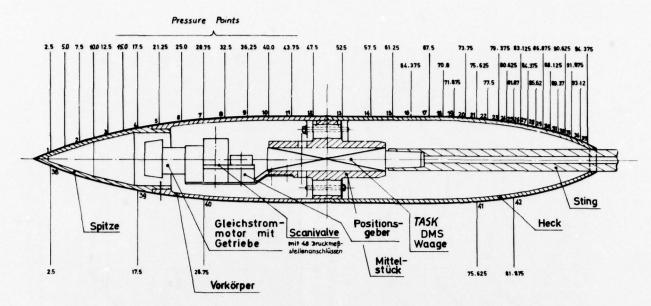


Fig. 2-3: Test Setup for Complete Model with Scanivalve, TASK-Balance, and Sting

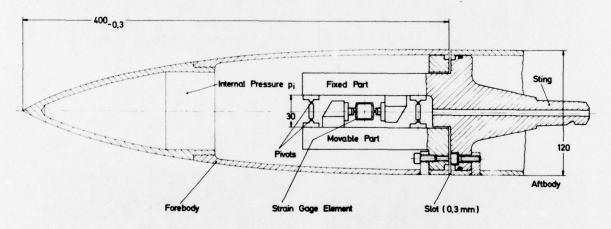
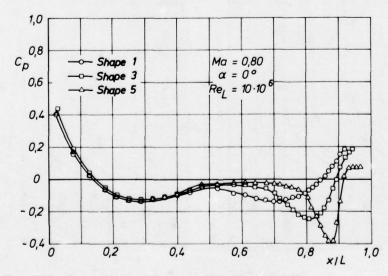
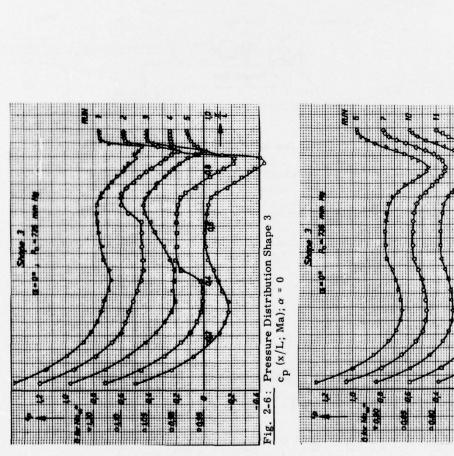


Fig. 2-4: Forebody Drag Measurement Setup (chord force balance)





80

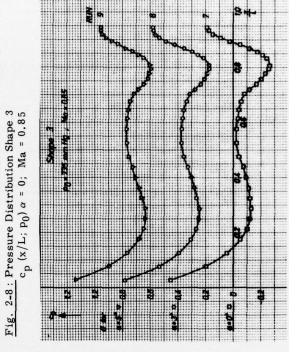


Fig. 2-9: Pressure Distribution Shape 3 $c_p(x/L; a)$; $p_0 = 735 \text{ mm Hg}$; Ma = 0.85

Pressure Distribution Shape 3 $c_p(x/L; Ma); \alpha = 0$

Fig. 2-7:

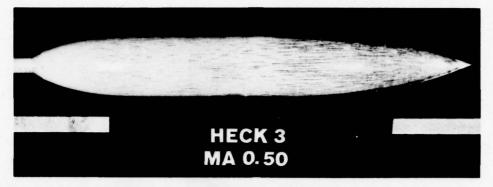


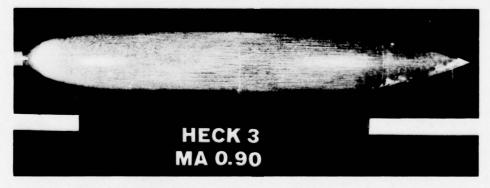
Fig. 2-10: Oilflow Picture Shape 3; Ma = 0.5; α = 0



Fig. 2-11: Oilflow Picture Shape 3; Ma = 0.8; α = 0



Fig. 2-12: Oilflow Picture Shape 3; Ma = 0.85; α = 0



<u>Fig. 2-13:</u> Oilflow Picture Shape 3; Ma = 0.90; α = 0

M9 = 0.801



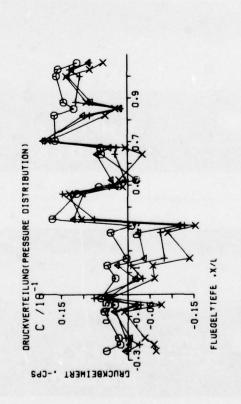
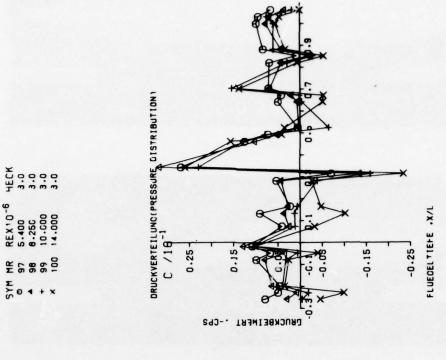
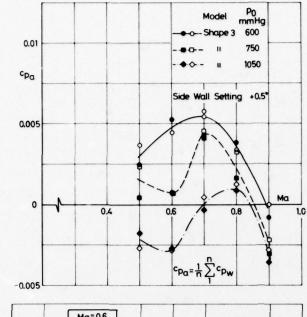


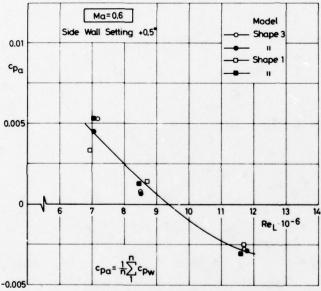
Fig. 2-14: Sidewall Pressure Distribution at Ma = 0.8, Tunnel Empty; cpwall (x/L; Re_L)



 $\overline{\rm Fig.~2-15:} \ \ \, {\rm Sidewall~Pressure~Distribution~at~Ma=0.8~and~Model~3;} \\ c_{\rm pwall} \ (x/L; {\rm Re}_L)$



 $\frac{\text{Fig. 2-16:}}{\text{Averaged over all Avavailable}} \\ \text{Pressure Points} \\ \text{c}_{\text{pa}} \text{ (Ma; p}_0\text{); Shape 3}$



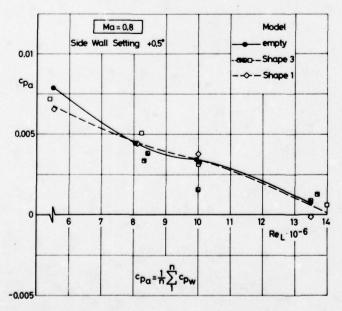


Fig. 2-18: Test-Section Wall Pressure,
Averaged over all Available
Pressure Points
c pa (ReL; Model); Ma = 0.8

3. PRESSURE DISTRIBUTION DATA FOR A 10° CONE-CYLINDER AT ZERO INCIDENCE IN THE MACH NUMBER RANGE 0.91 TO 1.22

submitted by THE HIGH SPEED AERODYNAMICS LABORATORY NAE/NRC

The 10° cone-cylinder is a model configuration, that has become more or less a standard, when determining transonic wind tunnel wall interference characteristics at Mach numbers above, but close to, one. It is also believed that pressure distribution data obtained on a model of such simple geometry will be useful in assessing transonic calculation methods for bodies of revolution. The submitted data were obtained as part of a calibration program for the NAE 5ft x 5ft wind tunnel. The data show that for Mach numbers above one the bow shock is effectively eliminated at the wall, but that the expansion wave from the cone-cylinder junction is reflected as a disturbance on the model. The pressure distribution data up to this reflected disturbance should be representative of interference-free, free air data.

1. General Description

1.1 Model designation or name

NAE calibration model T3

1.2 Model type

Cone-cylinder

- 1.3 Design requirements/conditions
- 1.4 Additional remarks

Model Geometry

- 2.1 Wing data
- 2.2 Body data (detail description of body geometry)

Figure 3.1 10° half-angle cone with cylindrical afterbody, overall L/D = 12

3. Wind tunnel

| 3.1 Designation |
|-----------------|
|-----------------|

3.2 Type of tunnel

o. 2 Type of cumer

3.2.1 stagnation pressure

3.2.2 stagnation temperature

3.2.3 humidity/dew point

3.3 Test section

3.3.1 dimensions

3.3.2 type of walls

1.25 - 4.5 bars, for transonic operations

NAE 5-ftx 5-ft trisonic W/T

293°K, max drop <5° during a run

0.0002 kg H2O/Kg air

Square

Blowdown

1.52m x 1.52m x 4.8m

perforated 20.5% porosity

φ 12.7mm normal holes at 26.4mm spacing

3.4 Flow field (empty test section)

3.4.1 reference static pressure

3.4.2 flow angularity

3.4.3 Mach number distribution

3.4.4 pressure gradient

3.4.5 turbulence/noise level

3.5 Additional remarks

3.6 References on wind tunnel

plenum pressure, for transonic operations

 $\sim 0.3^{\circ}$ rms for M ≥ 0.5

Fig. 3.2

Fig. 3.2

free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.015$ at $M_{\infty} = 0.8$

4. Tests

4.1 Type of tests

Pressure measurements

- 4.2 Wing span or Semispan to Tunnel Width
- 4.3 Flow condition

4.3.1 Angle of attack

00

4.3.2 Mach No.

0.91 - 1.22

4.3.3 Dynamic pressure

4.3.4 Reynolds Number

 $Re_D = 4x106$

4.3.5 Stagnation temperature

 $T_O \approx 290 \text{ K}$

4.4 Transition

4.4.1 Free or fixed

Free

4.5 Bending or torsion under load

None

4.6 Were different sized models used in No wind tunnel investigation? If so,

indicate sizes

5.

6.

| 4.7 Areas and lengths used to form coefficients | |
|---|--|
| 4.8 References on tests | Ref.2 |
| 4.9 Related reports | Ref.3, 4, 5. |
| Instrumentation | |
| 5.1 Surface Pressure Measurements | |
| 5.1.1 Pressure orifices in wing. Loca- tion & No. on upper & lower surfa | |
| 5.1.2 Pressure orifices on fuselage. Location and number | Figure 3.1 |
| 5.1.4 Geometry of orifices | lmm ID |
| 5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy | Wafer valves with 25 psid Statham PM 131 TC transducers |
| 5.2 Force measurements | None |
| 5.3 Boundary layer and flow-field measurements | None |
| 5.4 Surface flow visualization | None |
| 5.5 Skin friction measurements | None |
| 5.6 Other | None |
| 5.7 Additional remarks | None |
| 5.8 References on instrumentation | None |
| Data | |
| 6.1 Accuracy | |
| 6.1.1 Angle of attack setting | ±0.02° |
| 6.1.2 Free stream Mach number: | |
| <pre>-setting -variation during one pressure</pre> | ±0.003 |
| scan | ±0.003 |
| 6.1.3 pressure coefficients | $\Delta C_p = 0.003 + 0.02 C_p $ maximum error |
| 6.1.4 aerodynamic " | |
| 6.1.5 boundary layer quantities | |
| 6.1.6 repeatability | $\Delta C_{p} \leq \pm 0.007$ |
| 6.1.7 additional remarks | None |
| 6.2 Wall interference corrections | No corrections applied |
| 6.3 Presentation of data | |
| 6.3.1 aerodynamic coefficients | |
| 6.3.2 surface pressure coefficients | Table 3.1 to 3.6, Fig. 3.3 |
| 6.3.3 boundary layer quantities | |
| 6.3.4 wall interference corrections included | No |
| 6.3.5 corrections for model deflection | No |
| 6.3.6 empty test section calibration taken into account | Yes |
| 6.3.7 other corrections included | No |
| 6.3.8 additional remarks | Comparison of various cone data at M = 1 in Fig. |
| 6.4 Were tests carried out in different facilities on the current model. If so, what facilities ? Are data included in present data base ? | 3.4 |
| | |

6.5 To be contacted for further informa- L.H. Ohman, High Speed Aerodynamics Laboratory tion on tests NAE/NRC

8. References

Information for the users of the National Research Council's 5ft $\mathbf x$ 5ft blowdown wind 1. Brown, D. tunnel at the National Aeronautical

Establishment, Second Edition. NRC/NAE LTR-HA-6 September, 1970

2. Ohman, L.H. Calibration of the transonic test section of

the NAE 5ft x 5ft wind tunnel. Phase II - model measurements. NRC/NAE Data Report 5x5/-018, 1966

3. Spreiter, J.R. Aerodynamics of wings and bodies at transonic

J.A.S., August, 1959 speeds

4. Page, W.A. Experimental study of the equivalence of

transonic flow about slender cone-cylinders of circular and elliptic cross section.

NACA TN 4233, 1958

Wall interference effects on axisymmetric 5. Eastbrook, B.B.

bodies in transonic wind tunnels with

perforated wall test sections. AEDC-TR-59-12, 1959.

9. List of Symbols

local pressure on model p

 p_{∞} plenum chamber pressure = free stream static pressure

Po free stream stagnation pressure q

free stream dynamic pressure

pressure coefficient

D maximum diameter of model

L length of model

 L_N length of conical nose M free stream Mach number

x axial distance from apex of model also upstream

distance from rear seal face (exit) of transonic

test section.

height = width of transonic test section h

ReD Reynolds number based on model diameter D

TABLE 3.1

| RUN= | 3698, | MODEL 13, | RUTATED | O DEGRE | ES, AVERAGE | MINF = 0.909 |
|------|--------|-----------|---------|---------|-------------|--------------|
| 12 | X/D | P/PO | CP | MINE | PINE | |
| 1 | 0.400 | 0.654 | 0.203 | 0.910 | 18.05 | |
| 2 | 0.300 | 0.644 | 0.174 | 0.909 | 18.08 | |
| 2 | 0.800 | 0.544 | 0.172 | 0.909 | 18.08 | |
| 2 | 0.800 | 0.644 | 0.174 | 0.909 | 18.08 | |
| 2 | 0.800 | 0.643 | 0.169 | 0.909 | 18.08 | |
| 3 | 1.200 | 0.636 | 0.150 | 0.909 | 18.08 | |
| 4 | 1.600 | 0.531 | 0.132 | 0.908 | 18.13 | |
| 5 | 2.000 | 0.619 | 0.101 | 0.911 | 18.08 | |
| 6 | 2.400 | 0.605 | 0.059 | 0.909 | 18.10 | |
| 7 | 2.800 | 0.541 | -0.124 | 0.912 | 18.05 | |
| 8 | 2.855 | 0.329 | -0.758 | 0.909 | 18.08 | |
| 9 | 3.000 | 0.357 | -0.671 | 0.910 | 18.05 | |
| 10 | 3.200 | 0.419 | -0.491 | 0.909 | 18.08 | |
| 11 | 3.600 | 0.593 | 0.023 | 0.909 | 18.08 | |
| 12 | 4.000 | 0.587 | 0.004 | 0.909 | 18.08 | |
| 13 | 4.400 | 0.587 | 0.003 | 0.909 | 18.08 | |
| 14 | 4.800 | 0.586 | 0.002 | 0.909 | 18.08 | |
| 15 | 5.200 | 0.587 | 0.002 | 0.908 | 18.13 | |
| 16 | 5.600 | 0.585 | 0.002 | 0.911 | 18.08 | |
| 17 | 6.000 | 0.586 | 0.002 | 0.909 | 18.10 | |
| 18 | 6.400 | 0.584 | 0.002 | 0.912 | 18.05 | |
| 19 | 6.800 | 0.586 | 0.002 | 0.909 | 18.08 | |
| 20 | 7.200 | 0.587 | 0.006 | 0.910 | 18.05 | |
| 21 | 7.600 | 0.588 | 0.007 | 0.909 | 18.08 | |
| 22 | 8.000 | 0.587 | 0.004 | 0.909 | 18.08 | |
| 23 | 8.400 | 0.587 | 0.004 | 0.909 | 18.08 | |
| 24 | 8.800 | 0.587 | 0.004 | 0.909 | 18.08 | |
| 25 | 9.200 | 0.587 | 0.004 | 0.909 | 18.08 | |
| 26 | 9.600 | 0.585 | -0.005 | 0.908 | 18.13 | |
| 27 | 10.000 | 0.585 | 0.002 | 0.911 | 18.08 | |
| 28 | 10.400 | 0.586 | 0.003 | 0.909 | 18.10 | |
| 29 | 10.800 | 0.586 | 0.007 | 0.912 | 18.05 | |
| 30 | 11.200 | 0.593 | 0.022 | 0.909 | 18.08 | |
| | | | | | | |

TABLE 3.2

| UN= | 3699, 1 | MODEL T3, | | | ES, AVERAGE MINE |
|-----|---------|-----------|--------|-------|------------------|
| T | X/D | P/P0 | CP | MINE | PINE |
| 1 | 0.400 | 0.634 | 0.213 | 0.954 | 17.25 |
| 2 | 0.800 | 0.624 | 0.187 | 0.953 | 17.27 |
| 2 | 0.800 | 0.623 | 0.185 | 0.953 | 17.27 |
| 2 | 0.800 | 0.623 | 0.137 | 0.954 | 17.25 |
| 2 | 0.800 | 0.622 | 0.183 | 0.954 | 17.25 |
| 3 | 1.200 | 0.616 | 0.166 | 0.954 | 17.25 |
| 4 | 1.600 | 0.609 | 0.148 | 0.954 | 17.25 |
| 5 | 2.000 | 0.600 | 0.123 | 0.956 | 17.27 |
| 6 | 2.400 | 0.588 | 0.087 | 0.954 | 17.27 |
| 7 | 2.800 | 0.532 | -0.066 | 0.956 | 17.25 |
| 8 | 2.856 | 0.324 | -0.660 | 0.953 | 17.27 |
| 9 | 3.000 | 0.350 | -0.584 | 0.954 | 17.25 |
| 0 | 3.200 | 0.390 | -0.473 | 0.953 | 17.27 |
| 1 | 3.600 | 0.465 | -0.261 | 0.953 | 17.27 |
| | 4.000 | 0.571 | 0.040 | 0.954 | 17.25 |
| 3 | 4.400 | | 0.038 | 0.954 | 17.25 |
| 4 | 4.800 | 0.562 | 0.016 | 0.954 | 17.25 |
| 5 | 5.200 | | 0.010 | 0.954 | 17.25 |
| 6 | 5.600 | 0.559 | 0.008 | 0.956 | 17.27 |
| 7 | 6.000 | 0.559 | 0.006 | 0.954 | 17.27 |
| 8 | 6.400 | | 0.004 | 0.956 | 17.25 |
| 9 | 6.800 | 0.559 | 0.004 | 0.953 | 17.27 |
| 0 | 7.200 | 0.559 | 0.006 | 0.954 | 17.25 |
| 1 | 7.600 | 0.560 | 0.006 | 0.953 | 17.27 |
| 2 | 8.000 | 0.559 | 0.004 | 0.953 | 17.27 |
| 3 | 8.400 | 0.558 | 0.003 | 0.954 | 17.25 |
| 4 | 8.800 | 0.558 | 0.004 | 0.954 | 17.25 |
| 5 | 2.200 | 0.558 | 0.003 | 0.954 | 17.25 |
| 6 | 9.600 | 0.558 | 0.003 | 0.954 | 17.25 |
| 7 | 10.000 | 0.556 | -0.001 | 0.956 | 17.27 |
| 8 | 10.400 | 0.557 | 0.001 | 0.954 | 17.27 |
| 9 | 10.800 | | 0.004 | 0.956 | 17.25 |
| 0 | 11.200 | 0.565 | 0.021 | 0.953 | 17.27 |

TABLE 3.3

| RUY= | 3691, | 1DEL 13, | RUTATED | O DEGREE | S, AVERAGE MINE | -0.999 |
|------|--------|----------|---------|----------|-----------------|--------|
| ST | X/D | P/PO | CP | MINE | PINF | |
| 1 | 0.400 | 0.615 | 0.238 | 1.002 | 16.30 | |
| 2 | 0.800 | 0.506 | 0.212 | 1.000 | 16.30 | |
| 5 | 0.800 | 0.606 | 0.209 | 0.999 | 16.33 | |
| 2 | 0.800 | 0.606 | 0.210 | 1.000 | 16.30 | |
| 5 | 0.800 | 0.605 | 0.208 | 1.000 | 16.30 | |
| 3 | 1.200 | 0.602 | 0.196 | 0.998 | 16.33 | |
| 4 | 1.600 | 0.594 | 0.178 | 1.000 | 16.30 | |
| 5 | 2.000 | 0.588 | 0.160 | 0.999 | 16.33 | |
| 6 | 2.400 | 0.577 | 0.132 | 1.000 | 16.36 | |
| 7 | 2.800 | 0.533 | 0.005 | 0.996 | 16.36 | |
| 8 | 2.856 | 0.322 | -0.560 | 0.999 | 16.33 | |
| 9 | 3.000 | 0.345 | -0.492 | 1.002 | 16.30 | |
| 10 | 3.200 | 0.380 | -0.400 | 1.000 | 16.30 | |
| 11 | 3.600 | 0.433 | -0.259 | 0.999 | 16.33 | |
| 12 | 4.000 | 0.464 | -0.173 | 1.000 | 16.30 | |
| 13 | 4.400 | 0.494 | -0.093 | 1.000 | 16.30 | |
| 14 | 4.800 | 0.555 | 0.068 | 0.998 | 16.33 | |
| 15 | 5.200 | 0.555 | 0.072 | 1.000 | 16.30 | |
| 16 | 5.600 | 0.551 | 0.060 | 0.999 | 16.33 | |
| 17 | 6.000 | 0.542 | 0.037 | 1.000 | 16.36 | |
| 18 | 6.400 | 0.538 | 0.019 | 0.996 | 16.36 | |
| 19 | 6.800 | 0.533 | 0.012 | 0.999 | 16.33 | |
| 20 | 7.200 | 0.531 | 0.009 | 1.002 | 16.30 | |
| 21 | 7.600 | 0.531 | 0.009 | 1.000 | 16.30 | |
| 22 | 8.000 | 0.532 | 0.008 | 0.999 | 16.33 | |
| 23 | 8.400 | 0.531 | 0.008 | 1.000 | 16.30 | |
| 24 | 8.800 | 0.531 | 0.008 | 1.000 | 16.30 | |
| 25 | 9.200 | 0.533 | 0.008 | 0.998 | 16.33 | |
| 26 | 9.600 | 0.531 | 0.008 | 1.000 | 16.30 | |
| 27 | 10.000 | 0.532 | 0.008 | 0.999 | 16.33 | |
| 28 | 10.400 | 0.528 | -0.001 | 1.000 | 16.36 | |
| 29 | 10.800 | 0.533 | 0.006 | 0.996 | 16.36 | |
| 30 | 11.200 | 0.538 | 0.024 | 0.999 | 16.33 | |

TABLE 3.4

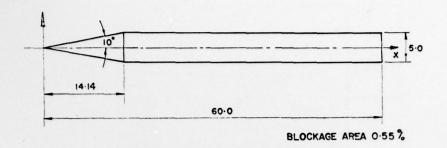
| PUN= | 3679. M | UDEL 13. | ROTATED | O DEGREE | S. AVERAGE MINF = | 1.056 |
|------|---------|----------|---------|----------|-------------------|-------|
| ST | X/D | P/P0 | CP | MINE | PINF | |
| 1 | 0.400 | 0.589 | 0.245 | 1.056 | 15.33 | |
| 2 | 0.800 | 0.585 | 0.236 | 1.056 | 15.33 | |
| 2 | 0.800 | 0.584 | 0.234 | 1.056 | 15.33 | |
| 2 | 0.800 | 0.586 | 0.237 | 1.056 | 15.33 | |
| 2 | 0.800 | 0.584 | 0.232 | 1.056 | 15.33 | |
| 3 | 1.200 | 0.581 | 0.224 | 1.056 | 15.33 | |
| 4 | 1.600 | 0.576 | 0.211 | 1.056 | 15.33 | |
| 5 | 2.000 | 0.567 | 0.190 | 1.057 | 15.36 | |
| 6 | 2.400 | 0.558 | 0.166 | 1.056 | 15.36 | |
| 7 | 2.800 | 0.521 | 0.069 | 1.056 | 15.36 | |
| 8 | 2.856 | 0.317 | -0.462 | 1.055 | 15.36 | |
| 9 | 3.000 | 0.337 | -0.407 | 1.056 | 15.33 | |
| 10 | 3.200 | 0.370 | -0.322 | 1.056 | 15.33 | |
| 11 | 3.600 | 0.410 | -0.217 | 1.056 | 15.33 | |
| 12 | 4.000 | 0.432 | -0.160 | 1.056 | 15.33 | |
| 13 | 4.400 | 0.459 | -0.091 | 1.056 | 15.33 | |
| 14 | 4.800 | 0.472 | -0.057 | 1.056 | 15.33 | |
| 15 | 5.200 | 0.472 | -0.058 | 1.056 | 15.33 | |
| 16 | 5.600 | 0.473 | -0.052 | 1.057 | 15.36 | |
| 17 | 6.000 | 0.495 | 0.003 | 1.056 | 15.36 | |
| 18 | 6.400 | 0.546 | 0.134 | 1.056 | 15.36 | |
| 19 | 6.800 | 0.541 | 0.120 | 1.055 | 15.36 | |
| 20 | 7.200 | 0.529 | 0.090 | 1.056 | 15.33 | |
| 21 | 7.600 | 0.515 | 0.054 | 1.056 | 15.33 | |
| 22 | 8.000 | 0.501 | 0.018 | 1.056 | 15.33 | |
| 23 | 8.400 | 0.489 | -0.012 | 1.056 | 15.33 | |
| 24 | 8.800 | 0.478 | -0.042 | 1.056 | 15.33 | |
| 25 | 9.200 | 0.472 | -0.058 | 1.056 | 15.33 | |
| 26 | 9.600 | 0.478 | -0.041 | 1.056 | 15.33 | |
| 27 | 10.000 | 0.490 | -0.008 | 1.057 | 15.36 | |
| 28 | 10.400 | 0.497 | 0.006 | 1.056 | 15.36 | |
| 29 | 10.800 | 0.497 | 0.007 | 1.056 | 15.36 | |
| 30 | 11.200 | 0.502 | 0.018 | 1.055 | 15.36 | |

TABLE 3.5

| RUN= | | MODEL 13, | | THE RESERVE OF STREET STREET, SAN ASSESSMENT | FS, AVERAGE | MINF=1.121 |
|------|--------|-----------|--------|--|-------------|------------|
| 51 | X/D | P/P0 | CP | MINE | PINE | |
| 1 | 0.400 | 0.537 | 0.203 | 1.122 | 14.16 | |
| 2 | 0.800 | 0.536 | 0.200 | 1.122 | 14.16 | |
| 2 | 0.800 | 0.534 | 0.194 | 1.121 | 14.16 | |
| 2 | 0.800 | 0.537 | 0.200 | 1.121 | 14.16 | |
| 2 | 0.800 | 0.535 | 0.197 | 1.121 | 14.16 | |
| 3 | 1.200 | 0.532 | 0.189 | 1.121 | 14.16 | |
| 4 | 1.600 | 0.532 | 0.191 | 1.122 | 14.13 | |
| 5 | 2.000 | 0.533 | 0.191 | 1.121 | 14.16 | |
| 6 | 2.400 | 0.532 | 0.190 | 1.122 | 14.19 | |
| 7 | 2.800 | 0.511 | 0.136 | 1.121 | 14.16 | |
| 8 | 2.856 | 0.312 | -0.359 | 1.121 | 14.16 | |
| 9 | 3.000 | 0.333 | -0.305 | 1.122 | 14.16 | |
| 10 | 3.200 | 0.362 | -0.233 | 1.122 | 14.16 | |
| 11 | 3.600 | 0.400 | -0.141 | 1.121 | 14.16 | |
| 12 | 4.000 | 0.420 | -0.090 | 1.121 | 14.16 | |
| 13 | 4.400 | 0.437 | -0.048 | 1.121 | 14.16 | |
| 14 | 4.800 | 0.443 | -0.033 | 1.121 | 14.16 | |
| 15 | 5.200 | 0.447 | -0.021 | 1.122 | 14.13 | |
| 16 | 5.600 | 0.445 | -0.029 | 1.121 | 14.16 | |
| 17 | 6.000 | 0.446 | -0.025 | 1.122 | 14.19 | |
| 18 | 6.400 | 0.446 | -0.025 | 1.121 | 14.16 | |
| 19 | 6.800 | 0.454 | -0.005 | 1.121 | 14.16 | |
| 20 | 7.200 | 0.439 | -0.040 | 1.122 | 14.16 | |
| 21 | 7.600 | 0.456 | 0.0 | 1.122 | 14.16 | |
| 22 | 8.000 | 0.462 | 0.014 | 1.121 | 14.16 | |
| 23 | 8.400 | 0.477 | 0.050 | 1.121 | 14.16 | |
| 24 | 8.800 | 0.502 | 0.115 | 1.121 | 14.16 | |
| 25 | 9.200 | 0.492 | 0.090 | 1.121 | 14.16 | |
| 26 | 9.600 | 0.477 | 0.053 | 1.122 | 14.13 | |
| 27 | 10.000 | 0.466 | 0.023 | 1.121 | 14.16 | |
| 28 | 10.400 | 0.462 | 0.015 | 1.122 | 14.19 | |
| 29 | 10.800 | 0.459 | 0.006 | 1.121 | 14.16 | |
| 30 | 11.200 | 0.449 | -0.018 | 1.121 | 14.16 | |

TABLE 3.6

| RUN= | X/D | P/P0 | CP | | ES, AVERAGE | MINF = 1.22 |
|------|--------|-------|--------|-------|-------------|-------------|
| ST | | | | MINE | PINE | |
| 1 | 0.400 | 0.471 | 0.168 | 1.223 | 12.44 | |
| 2 | 0.800 | 0.470 | 0.167 | 1.224 | 12.44 | |
| 2 | 0.800 | 0.470 | 0.167 | 1.223 | 12.44 | |
| | 0.800 | 0.472 | 0.170 | 1.221 | 12.44 | |
| 2 | 0.800 | 0.469 | 0.162 | 1.221 | 12.44 | |
| | 1.200 | 0.468 | 0.160 | 1.221 | 12.44 | |
| 5 | 1.600 | 0.465 | 0.155 | 1.223 | 12.41 | |
| - | 2.000 | 0.466 | 0.155 | 1.221 | 12.44 | |
| 6 | 2.400 | 0.468 | 0.160 | 1.222 | 12.47 | |
| 7 | 2.800 | 0.461 | 0.142 | 1.221 | 12.44 | |
| 8 | 2.856 | 0.286 | -0.273 | 1.223 | 12.44 | |
| 9 | 3.000 | 0.302 | -0.235 | 1.223 | 12.44 | |
| 10 | 3.200 | 0.320 | -0.191 | 1.224 | 12.44 | |
| 11 | 3.600 | 0.351 | -0.118 | 1.223 | 12.44 | |
| 12 | 4.000 | 0.366 | -0.084 | 1.221 | 12.44 | |
| 13 | 4.400 | 0.382 | -0.045 | 1.221 | 12.44 | |
| 14 | 4.800 | 0.383 | -0.043 | 1.221 | 12.44 | |
| 15 | 5.200 | 0.388 | -0.028 | 1.223 | 12.41 | |
| 16 | 5.600 | 0.394 | -0.018 | 1.221 | 12.44 | |
| 17 | 6.000 | 0.395 | -0.013 | 1.222 | 12.47 | |
| 18 | 6.400 | 0.395 | -0.013 | 1.221 | 12.44 | |
| 19 | 5.800 | 0.397 | -0.008 | 1.223 | 12.44 | |
| 20 | 7.200 | 0.399 | -0.002 | 1.223 | 12.44 | |
| 21 | 7.500 | 0.398 | -0.003 | 1.224 | 12.44 | |
| 22 | 8.000 | 0.395 | -0.013 | 1.223 | 12.44 | |
| 23 | 8.400 | 0.394 | -0.017 | 1.221 | 12.44 | |
| 24 | 8.800 | 0.393 | -0.018 | 1.221 | 12.44 | |
| 25 | 9.200 | 0.393 | -0.018 | 1.221 | 12.44 | |
| 26 | 9.600 | 0.393 | -0.016 | 1.223 | 12.41 | |
| 27 | 10.000 | 0.399 | -0.004 | 1.221 | 12.44 | |
| 28 | 10.400 | 0.404 | 0.007 | 1.222 | 12.47 | |
| 29 | 10.800 | 0.398 | -0.008 | 1.221 | 12.44 | |
| 30 | 11.200 | 0.430 | 0.071 | 1.223 | 12.44 | |



PRESSURE HOLE LOCATIONS

| STA | 1 | 2* | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 31 |
|-----|---|----|---|---|----|----|----|-------|----|----|----|----|------|--------|
| x" | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 14.28 | 15 | 16 | 18 | 20 | | 53 |

* 4 HOLES AT 90° SPACING

All dimensions in inches

FIG 3.1 CONE-CYLINDER MODEL T3

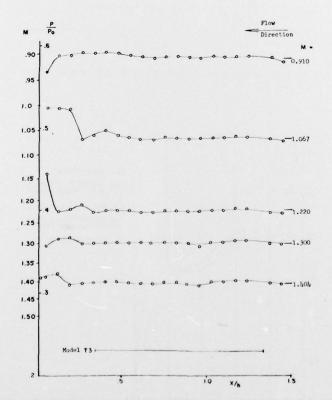


FIG 3.2 TYPICAL SIDEWALL PRESSURE DISTRIBUTIONS IN "EMPTY" TEST SECTION AND MODEL LOCATIONS

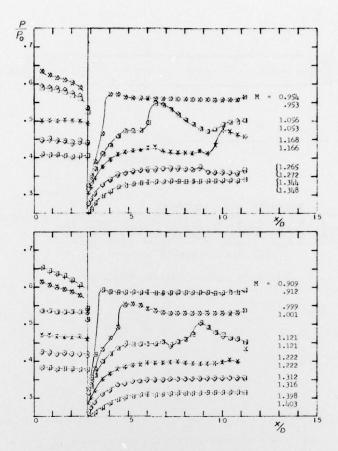


FIG 3.3 PRESSURE DISTRIBUTION FOR MODEL T3

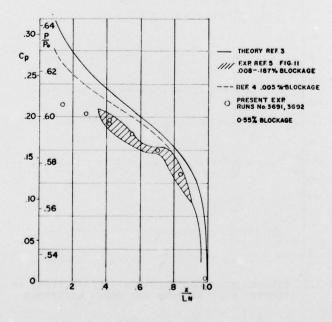


FIG 3.4 PRESSURE DISTRIBUTION ON THE NOSE SECTION OF A 10° SEMI-APEX CONE-CYLINDER AT M=1.0

4. ONERA CALIBRATION MODEL C5

by

X. Vaucheret

Office National dÉtudes et de Recherches Aerospatiales 92320 Chatillon - France

4.1 - Introduction

A program was initiated in 1969 by ONERA to test a series of similar calibration models representative of a transport aircraft, in various American and European transonic wind-tunnels. The objective of this program was to study wall interference. In relation to this program, blockage effects near Mach number one were separately investigated with bodies of revolution having the same distributions of cross sectional area as the airplane models.

The largest body of revolution tested is the calibration body C5 for which data obtained in the 11 ft NASA-Ames wind tunnel are presented here. The data obtained for the calibration body C5 in the largest tunnels used, i.e. 16 ft AEDC, 11 ft NASA-Ames and 6 ft S2 MODANE ONERA, practically agree within the data scatter at all Mach numbers up to one.

4.2 - Data set

1. General Description

1.1. Model Designation
ONERA calibration body C5

1.2. Model Type
axisymmetrical body

1.3. Design Requirements/Conditions
Comparison of transonic wind-tunnels near Mach 1

1.4. Additional Remarks
4 other geometrically similar bodies exist and have been used to study the blockage effect

2. Model Geometry

 2.1. Body length
 1.0578 m

 2.2. Base diameter
 0.08516 m

 2.3. Maximum diameter
 0.15268 m

 2.4. Diameter of cylindrical parts
 0.1242 m

 2.5. Fore part
 ellipsoïd

 2.6. Model coordinates
 see table 1

 2.7. Fabrication tolerances
 0.03 mm

3. Wind Tunnel

3.1. Designation

Ames Research Center 11 by 11 ft transonic wind tunnel
3.2. Type of Tunnel

3.3. Test Section

3.3.1. Shape of Test Section

square

3.3.1. Shape of Test Section square
3.3.2. Size of Test Section (Width, Height) 11 x 11 ft
3.3.3. Type of Test Section Walls baffled slots-open area ratio 5.8 %-constant slot width with 45° "zee" baffles with axis of bend normal to the wall

Treatment of Side Wall Boundary Layer Sidewalls diverged 0.19°

3.4. Flow Field (Empty Test Section)

3.4.1. Reference Static Pressure

3.4.2. Flow Angularity

3.4.3. Mach Number Distribution

3.4.4. Pressure Gradient

3.4.5. Turbulence/Noise Level

ACp = 2.2 % at M = 0.6
R.M.S. 2.8 % at M = 0.7
1.5 % at M = 1.2

3.4.6. Side Wall Boundary Layer

3.5. Freestream Mach Number

3.5.1. Range
0.3 to 1.4
3.5.2. Pressures Used to Determine Mach Number
Settling chamber total pressure and plenum chamber pressure

- 3.5.3. Accuracy of Mach Number Determination (AM)
- 3.5.4. Maximum Mach Number Variation in x, y, z-Direction (Empty Tunnel)

Maximum Variation of Flow Direction Maximum Mach Number Variation During a Run

- 3.6. Reynolds Number Range
 - 3.6.1. Unit Reynolds Number
 - 3.6.2. Means of Varying Reynolds Number
- 3.7. Temperature Range and Dewpoint
- 3.8. Model Attitudes
 - 3.8.1. Angle of Attack, Yaw, Roll
 - 3.8.2. Accuracy in Determining Angles
- 3.9. Organization Operating the Tunnel and Location of Tunnel
- 3.10. Who is to be Contacted for Additional Information
- 3.11. Literature Concerning this Facility
- 3.12. Additional Remarks

4. Tests

- 4.1. Type of Tests
- 4.2. Blockage
- 4.3. Test conditions
 - 4.3.1. Angle of Attack
 - 4.3.2. Mach Number
 - 4.3.3. Stagnation Pressure
 - 4.3.4. Reynolds Number
 - 4.3.5. Stagnation Temperature
- 4.4. Transition
 - 4.4.1. Free or Fixed
 - 4.4.2. Position of Free Transition
 - 4.4.3. Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements
 - 4.4.4. Were Checks Made to Determine if Transition Occurred at Trip Locations ?
- 4.5. Bending or Torsion Under Load
- 4.6. Were Different Sized Models Used in Wind Tunnel Investigation ?

The standard deviation variation at any given centerline station \leq .001 in Mach number over pressure range from 1/2 to 2 atmospheres. Maximum pressure error estimated to be within 1.4 psf for plenum static pressure and \mathfrak{P}_{L} .

Z-direction: .002 difference between ceiling statics and center line at .6 \leq M \leq .9 X-direction: \pm .004 at M = 1.4 \pm .002 at M = 0.9

optimum model location, optimum tunnel control settings

- \pm 0.15° at M = 0.6
- .003, usually within + 0.001
- 6.7 to 32 x 10⁶ per meter pressurization
- 60 to 120° F depending on M, $\boldsymbol{p}_{\boldsymbol{\lambda}}$ and ambient temperature
- + 15° plus bent sting capability and 360° Roll mechanism

Model support system calibration and elastic deflections good to $^{\pm}$.03° or better

Experimental Investigations Branch, Aerodynamics Division, NASA Ames Research Center; Bldg.227, Moffett Field, California 94035

FRANK STEINLE Jr., Assistant Chief, Exp. Inv. Br. N 227-5 Ames

Ames Research Facilities Summary, 1974 - and NASA CR-1874 "An Inventory of Aeronautical Ground Research Facilities", Vol. 1 - Wind Tunnels - Pirrello & al.

Majority of noise in test section associated with "organ" tones produced by slot-baffles - Research underway to modify baffles to eliminate organ mode.

steady tests : pressure, drag

0.17 per cent

x = 0

0.6 to 1.0

1.2 to 0.9 bar

 $R_{\rm L} = 13.8 \times 10^6$

305 to 307 K

fixed

on the nose at x = 72.7 mm.ballotini (glass beads) 0.12 mm in diameter.

yes, sublimination technique

five geometrically similar bodies:
body C1 C2 C3 C4 C5

length 0.31 0.40 0.51 0.66 1.06
(m.)

for the drag coefficient: $S = 0.005696 \text{ m}^2 \text{ (base area)}$ 4.7. Areas and Lengths Used to Form Coefficients 4.8. References on Tests 4.9. Related Reports 5. Instrumentation 5.1. Surface Pressure Measurements 44 pressure orifices on vertical generator 40 pressure orifices on horizontal generator 5.1.1. Pressure Orifices base pressure orifice (table 1) 5.1.2. Geometry of Orifices 0.6 mm in diameter, perpendicular to body surface 5.1.3. Type of Pressure Transducer and 48 ports scanivalve plus transducer 25 psi Scanning Devices Used 5.2. Force Measurements internal balance 5.2.1. Type and Location of Balance 5.2.2. Forces and Moments that Can be 6 components balance Measured. Maximum Loads and Accuracy 6. Data 6.1. Accuracy △Cp= + 0.014 6.1.1. Pressure coefficients $\Delta C_{A} = \pm 0.002$ 6.1.2. Aerodynamic Coefficients 6.2. Wall Interference Corrections none, because of very small blockage (0.17 per cent) 6.3. Data Presentation 6.3.1. Aerodynamic Coefficients table 2 : drag coefficient 6.3.2. Surface Pressure Coefficients table 2 : local P/Pi figures 1,2: local Mach number distribution 6.4. Were Tests Carried Out in Different tests were carried out in 3 transonic wind-tunnels Facilities on the Current Model ? If (réf. 1, 2, 3) not included in present data base. The data from these wind-tunnels (16T AEDC, 11T NASA, 6T S2 Modane) agree, except in rare instances, within so, What Facilities. Are Data Included In Present Data Base ? the data accuracy at all Mach numbers up to 1.0. 7. References 1. X. VAUCHERET Comparaison d'essais transsoniques bi et tridimensionnels effectués dans diverses grandes souffleries. M. BAZIN AGARD C.P. nº 187 (1975) C. ARMAND 2. T.W. BINION Tests on the ONERA calibration models in three transonic wind tunnels AEDC TR 76-133 (1976) 3. S.E. GUDMUNDSON Comparative tests with ONERA airplane calibration models in FFA transonic wind tunnels EUROMECH 40 Colloquium (1973) 8. List of Symbols draf coefficient corrected to zero base drag CA pressure coefficient CP L body length Mach number (test section) local Mach number (on the body) Mlocal p local static pressure (on the body) stagnation pressure Pi body radius at x (mm) (table 1) r Reynolds number (based on L) RL

S

base area

angle of attack

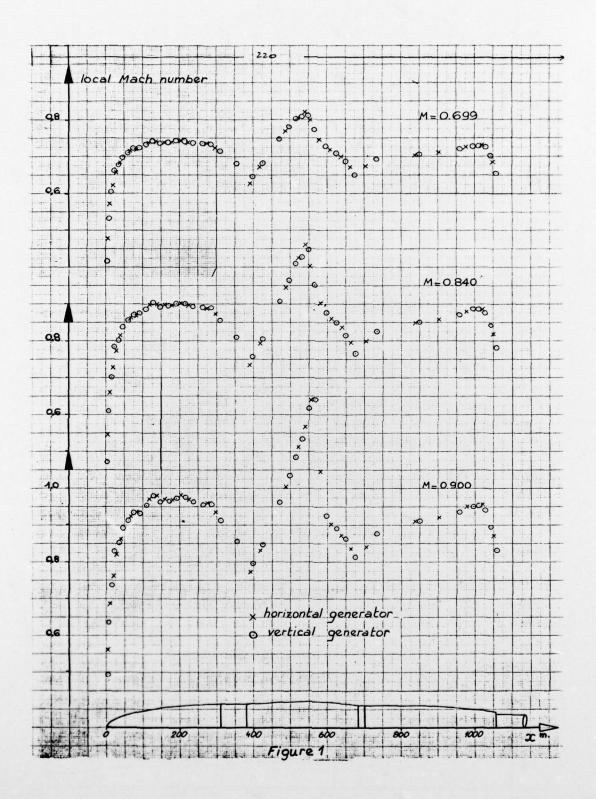
abscissa along body axis (mm) (table 1)

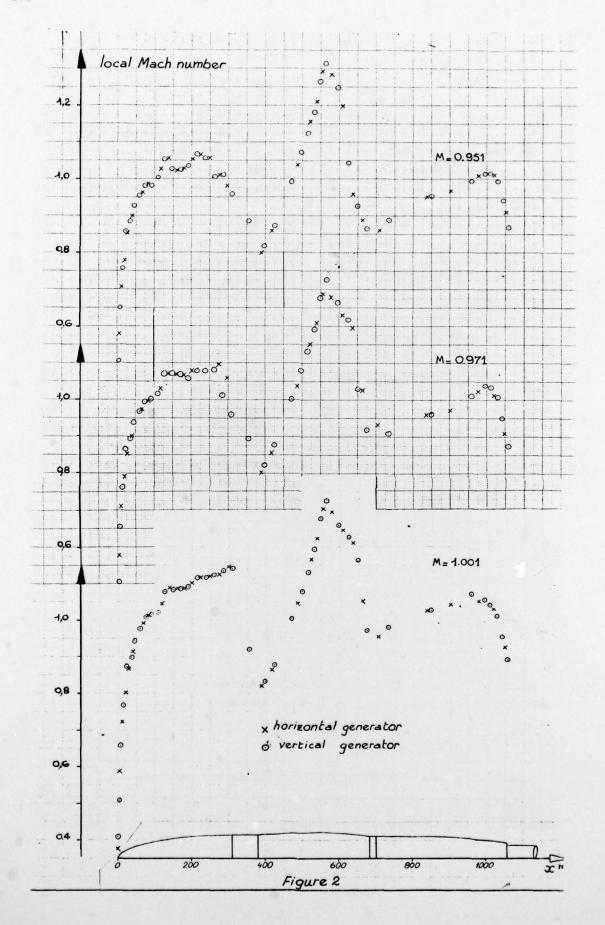
TABLE 1 Coordinates of C5 body and position of pressure holes

| | | - | v | ertical gen | erator | 1 | Horizontal | generator |
|--------------|---------|--------------|--|--|---|--|---|---|
| Z 310.50 mm | / \ | ellipsoid | #P 1 2 3 4 5 6 7 8 9 10 11 12 | X in MM .000 1.00 4.00 8.50 15.00 23.50 34.00 59.50 74.50 91.00 | r in MM. 90 4 18 9 93 14 43 19 06 24 16 28 25 32 32 36 55 40 35 43 91 41 24 | MP 46 47 48 49 50 51 52 53 54 55 56 | 1 1n MM -50 2.00 6.00 11.50 19.00 28.50 39.50 57.00 68.50 87.50 100.00 118.00 | 7 In MM 3.52 7.04 42.15 16.74 21.38 25.38 30.39 34.39 38.90 42.15 45.64 48.72 |
| x= 683.10 mm | | aylin drical | 13 14 15 16 17 18 19 20 21 22 23 24 | 128.00 148.00 149.50 191.50 214.50 238.00 262.00 264.00 310.50 355.85 384.85 | 50 23 52 91 55 32 57 35 59 05 60 38 61 33 61 20 62 09 62 10 62 11 63 24 | 58 59 60 61 62 63 64 65 66 67 68 | 138.00 159.00 180.50 203.00 250.00 274.00 298.00 390.85 405.85 418.85 | 54 63 54 20 56 33 58 25 59 45 60 90 61 67 62 05 62 49 64 00 63 59 70 48 |
| | r. 62 1 | Cylindrice/ | 25 26 27 28 29 30 31 32 33 | 412.35 425.85 441.85 470.85 478.85 516.85 533.85 549.85 560.85 | GA:80 66:33 68:73 72:33 74:96 76:02 76:04 76:04 77:76 76:06 | 70 71 72 73 74 75 76 77 78 79 | 487.85 506.85 523.85 540.85 556.85 581.85 611.85 637.85 663.85 706.45 775.45 | 74.05 75.49 76.25 76.34 75.38 78.30 71.61 67.37 64.42 62.42 64.48 |
| | | | 36 37 38 39 40 41 42 43 44 | 650.85 676.85 733.45 849.45 958.45 1010.45 1028.45 1043.45 | 65 92 62 93 64 93 58 96 55 46 52 96 51 34 48 95 46 18 30 29 | 81 82 83 84 85 | 838.45 903.45 978.45 1021.45 1050.45 | 59.98 57.91 54.24 50.40 44.50 |

| | | TABLE 2 | - | pressure d | | | |
|---------------------|---------|---------|------------|-------------|--------|--------|-------|
| - | | | , vertical | T generator | | | |
| м | | .699 | .840 | .900 | .951 | .971 | 1.001 |
| Pi (sar) | 1 | 1,0877 | .9828 | .9541 | .9402 | .9340 | -9258 |
| R ₁ 10-6 | | 13.871 | 13.819 | 13.829 | 13.888 | 13.888 | 13.83 |
| CA. | | .0098 | .0102 | .0130 | .0223 | .0272 | .0308 |
| Α. | | | | | | | |
| 40 | X in MM | P/P1 | 0/01 | 9/91 | P/P1 | 2/21 | P/P1 |
| 1 | .00 | .9644 | .9591 | .9311 | .8596 | .8525 | .892 |
| 3 | 1.00 | . 9663 | .8575 | .8468 | .8406 | .8390 | . 838 |
| : | 8.50 | .8252 | .7778 | .7621 | .7523 | .7446 | .748 |
| 5 | 15.00 | .7806 | .7202 | .6970 | .6834 | .6765 | .676 |
| | 23.50 | .7446 | .6660 | .6370 | .6165 | .6112 | .609 |
| , | 34.00 | .7357 | .6542 | .6217 | .6014 | .5960 | .591 |
| | 46.00 | .7223 | .6319 | .5966 | . 5734 | .5685 | .564 |
| 9 | 59.50 | .7134 | .6207 | . 5033 | .5560 | .5479 | .542 |
| 10 | 76.50 | .7057 | .6100 | .5691 | .5394 | .5292 | .522 |
| 11 | 91.00 | .7058 | .6079 | .5713 | .5400 | .5269 | .519 |
| 12 | 109.00 | .7005 | .6003 | .5572 | .5271 | .5195 | .515 |
| 13 | 128.00 | .6935 | . 5885 | .5409 | .5107 | .4842 | :481 |
| 14 | 148.00 | .6982 | .5968 | .5516 | .5130 | :4849 | .477 |
| 15 | 169.50 | .6961 | .5908 | .5454 | .5074 | ,4893 | .474 |
| 16 | 191.50 | .6936 | .5902 | .5433 | .4867 | .4749 | .459 |
| 18 | 214.50 | .6975 | .5956 | .5516 | .4938 | .4799 | .450 |
| 19 | 262.00 | .6988 | . 5970 | .5557 | .5244 | .4773 | .454 |
| 50 | 286.00 | .6985 | .5979 | . 5541 | .5204 | .5178 | .441 |
| 21 | 310.50 | .7109 | .6198 | .5830 | .5574 | .5540 | .446 |
| 22 | 355.05 | .7318 | . 6499 | .6184 | .6007 | .5960 | .576 |
| 25 | 586.85 | | | | | 2020 | |
| 24 | 398.85 | .7561 | .6853 | .6580 | .6442 | .6401 | . 634 |
| 25 | 412.35 | | | | | | |
| 56 | 425.85 | .7326 | .6529 | .6253 | .6096 | .6042 | .609 |
| 47 | 441.85 | | | | .5320 | .5268 | .526 |
| 50 | 470.05 | .6903 | .5872 | .5517 | .4852 | .4911 | .480 |
| 50 | 498.65 | .6685 | .5506 | .5061 | :4543 | .4490 | .450 |
| 30 | 516.05 | .6546 | .5118 | :4497 | .4223 | .4175 | .416 |
| 32 | 549.85 | .6488 | .5003 | .4024 | . 3786 | . 3729 | .372 |
| 33 | 566.85 | .6733 | .5588 | . 3905 | .3546 | . 3493 | .347 |
| 34 | 597.85 | .7034 | .6065 | .5752 | . 3873 | .3004 | . 302 |
| 35 | 625.85 | .7159 | .6253 | .5972 | .5057 | .4009 | . 596 |
| 36 | 650.85 | .7292 | .6454 | .6159 | .5754 | .4922 | .434 |
| 37 | 676.85 | .7533 | .6772 | .6476 | .6131 | .5704 | .545 |
| 36 | 735.45 | .7256 | . 6305 | . 6060 | .5985 | .5836 | .539 |
| 39 | 849.45 | .7166 | .6238 | .5055 | .5580 | ,5538 | .511 |
| 40 | 958.45 | .7084 | .6097 | .5679 | .5327 | . 5230 | .40 |
| 41 | 995.45 | .7025 | .5996 | .5593 | .5190 | .5056 | .493 |
| 42 | 1010.45 | .7025 | .6001 | .5567 | .5100 | .5065 | .501 |
| 43 | 1028.45 | .7037 | .6062 | .5653 | .5321 | .5227 | .323 |
| 44 | 1043.45 | .7197 | .6291 | .5940 | .5660 | .5574 | .556 |
| 45 | 1057.77 | .7485 | .6676 | .6357 | .6116 | .6034 | . 599 |

| | TABLE 2 | | e pressure d | | | |
|----------|---------|--------|--------------|--------|--------|-------|
| н . | . 699 | .840 | .900 | .951 | .971 | 1,001 |
| Pi (bar) | 1.0877 | 1 | 1 | 1 | | 1 |
| | 1.0877 | - 9828 | .9541 | .9402 | .9340 | .9258 |
| RL 10-6 | 13.871 | 13.819 | 13.829 | 13.888 | 13.888 | 13.83 |
| C.A. | .0098 | 0.102 | .0130 | .0223 | .0272 | .0308 |
| X in HH | P/P1 | P/PI | P/P1 | P/PI | P/PI | 9/91 |
| .50 | .9851 | .9811 | .9830 | .9799 | .9797 | .980 |
| 2.00 | .9351 | .9179 | .9147 | ,9088 | .9080 | .907 |
| 6.00 | .8555 | .8169 | .8074 | .7961 | .7940 | .794 |
| 11.50 | .8015 | .7456 | .7303 | .7175 | .7125 | .706 |
| 10.00 | .7710 | .7035 | .6809 | . 6635 | .6582 | . 855 |
| 28.50 | .7483 | .6737 | .6423 | .6223 | .6190 | .612 |
| 39.50 | -7306 | .6451 | .6145 | .5914 | .5970 | .581 |
| 52.00 | .7084 | .6398 | .6147 | .5911 | .537A | .788 |
| 68.50 | .7107 | .6154 | .5771 | .5510 | .5449 | .533 |
| 82.50 | .7096 | .6115 | .5697 | .5304 | .6037 | .520 |
| 100.00 | .7477 | .6684 | | .6116 | .5053 | ,595 |
| 118.00 | .695A | .592A | .5474 | .5116 | .4821 | ,4991 |
| 159.00 | .6970 | .5931 | .5481 | .4946 | .4860 | .475 |
| 180.50 | .6961 | .5944 | .5481 | .5153 | .4890 | .476 |
| 203.00 | .6933 | .5091 | .5581 | .5103 | .4807 | .467 |
| 224.00 | .6963 | .5947 | .5470 | .4965 | .4745 | .458 |
| 250.00 | .4785 | :5714 | .5246 | .4948 | .4400 | .420 |
| 274.00 | .6985 | .5985 | .5537 | .5218 | .4816 | .454 |
| 298.00 | .7065 | .6092 | .5690 | .5400 | .5417 | .441 |
| 390.85 | .7664 | .6971 | . 6744 | .6565 | .6527 | .64* |
| 405.85 | | | | ,0,0, | | |
| 418.85 | .7390 | .6601 | .6368 | .6182 | .6175 | .613 |
| 454.85 | | | | | | |
| 487.85 | .6764 | .5634 | .5259 | ,5055 | .5026 | . 500 |
| 506.85 | | | | | | |
| 523.05 | .6520 | .5128 | .4608 | .4367 | .4353 | .43* |
| 540.85 | .6434 | .4916 | .4305 | .4063 | .4030 | .399 |
| 556.85 | .6570 | .5269 | . 3915 | , 3051 | .3627 | . 359 |
| 581.85 | .6921 | .5899 | .5000 | .3695 | . 3664 | .362 |
| 611.85 | .7020 | .6165 | .5901 | .4135 | .3011 | . 387 |
| 637.85 | .7217 | .6333 | .6095 | .5547 | .4153 | .406 |
| 663.85 | .7394 | .658A | .6320 | ,5996 | .5315 | .407 |
| 704.45 | .7387 | . 6568 | .6296 | .6178 | .5840 | . 556 |
| 775.45 | .7469 | .6665 | .6347 | .6095 | .6030 | .500 |
| 838.45 | .7176 | .6245 | .5851 | .5585 | .5565 | .511 |
| 903.45 | .7136 | .6190 | .5785 | .5483 | .5438 | .502 |
| 1021.45 | .7037 | .6010 | .5591 | *2555 | .5103 | .496 |
| 1050.45 | .7295 | .6438 | .5565 | .5218 | 3791 | .500 |
| 1030.43 | | | .6103 | .5649 | *21.44 | . 575 |





| | | KLI OKI DOCC | MENTATION PAGE | |
|----------------------|---------|---|--|--|
| 1. Recipient's Ref | erence | 2. Originator's Reference | 3. Further Reference | 4. Security Classification of Document |
| | | AGARD-AR-138 | ISBN 92-835-1323-1 | UNCLASSIFIED |
| ı | North A | Group for Aerospace I tlantic Treaty Organizaticelle, 92200 Neuilly su | | |
| | | | E FOR COMPUTER PROC Panel Working Group 04 | RAM ASSESSMENT – |
| 7. Presented at | | | | |
| 8. Author(s) | | | | 9. Date |
| | Various | | | May 1979 |
| 10. Author's Addre | SS | | | 11. Pages |
| 7 | Various | | | 624 pages |
| 12. Distribution Sta | tement | policies and regulation | ributed in accordance with ns, which are outlined on to of all AGARD publication | the |
| 13. Keywords/Desc | riptors | | | |
| | Aerodyr | namic characteristics | Mathematic | cal models |
| | Comput | er programs | Data proces | sing |
| | Assessm | ents | Aerodynam | ic configurations |

14. Abstract

The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability.

To aid in the development and refinement of computational methods and to improve their applicability and compatibility an EXPERIMENTAL DATA BASE was established, presenting selected test results and detailed geometric descriptions of representative airfoil, wing, wing-body and body-alone configurations. In addition, the basic limitations of the available data as well as suggestions for future tests designed to reduce these limitations are discussed in detail.

K

| AGARD Advisory Report No.138 Advisory Group for Aerospace Research and | AGARD-AR-138 | AGARD Advisory Report No.138 Advisory Group for Aerospace Research and | AGARD-AR-138 |
|--|--|---|---|
| Development, NATO EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT — Report of the Fluid Dynamics Panel Working Group 04 Published May 1979 642 pages | Aerodynamic characteristics Computer programs Assessments Mathematical models | Development, NATO EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT — Report of the Fluid Dynamics Panel Working Group 04 Published May 1979 642 pages | Aerody namic characteristics Computer programs Assessments Mathematical models |
| The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability. P.T.O. | Data processing Aerodynamic configurations | The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability. P.T.O. | Data processing Aerodynamic configurations |
| AGARD Advisory Report No.138 Advisory Group for Aerospace Research and | AGARD-AR-138 | AGARD Advisory Report No.138 Advisory Group for Aerospace Research and | AGARD-AR-138 |
| Development, NATO EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT — Report of the Fluid Dynamics Panel Working Group 04 Published May 1979 642 pages | Aerodynamic characteristics Computer programs Assessments Mathematical models | Development, NATO EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT — Report of the Fluid Dynamics Panel Working Group 04 Published May 1979 642 pages | |
| The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability. | Data processing Aerodynamic configurations | The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability. | Data processing Aerodynamic configurations |
| P.T.O. | | P.T.O. | |

To aid in the development and refinement of computational methods and to improve their applicability and compatibility an EXPERIMENTAL DATA BASE was established, presenting selected test results and detailed geometric descriptions of to reduce these limitations are discussed in detail. the basic limitations of the available data as well as suggestions for future tests designed respresentative airfoil, wing, wing-body and body-alone configurations. In addition, established, presenting selected test results and detailed geometric descriptions of their applicability and compatibility an EXPERIMENTAL DATA BASE was To aid in the development and refinement of computational methods and to improve to reduce these limitations are discussed in detail. the basic limitations of the available data as well as suggestions for future tests designed respresentative airfoil, wing, wing-body and body-alone configurations. In addition, ISBN 92-835-1323-1 ISBN 92-835-1323-1 the basic limitations of the available data as well as suggestions for future tests designed respresentative airfoil, wing, wing-body and body-alone configurations. In addition, established, presenting selected test results and detailed geometric descriptions of their applicability and compatibility an EXPERIMENTAL DATA BASE was To aid in the development and refinement of computational methods and to improve respresentative airfoil, wing, wing-body and body-alone configurations. In addition, established, presenting selected test results and detailed geometric descriptions of their applicability and compatibility an EXPERIMENTAL DATA BASE was the basic limitations of the available data as well as suggestions for future tests designed to reduce these limitations are discussed in detail. to reduce these limitations are discussed in detail. To aid in the development and refinement of computational methods and to improve ISBN 92-835-1323-1 ISBN 92-835-1323-1

B 346

AGARD

NATO (OTAN

RUE ANCELLE . 92200 NEUILLY-SUR-SEINE

FRANCE

Telephone 745.08.10 · Telex 610176

DISTRIBUTION OF UNCLASSIFIED AGARD PUBLICATIONS

AGARD does NOT hold stocks of AGARD publications at the above address for general distribution. Initial distribution of AGARD publications is made to AGARD Member Nations through the following National Distribution Centres. Further copies are sometimes available from these Centres, but if not may be purchased in Microfiche or Photocopy form from the Purchase Agencies listed below.

NATIONAL DISTRIBUTION CENTRES

BELGIUM

Coordonnateur AGARD – VSL Etat-Major de la Force Aérienne Quartier Reine Elisabeth Rue d'Evere, 1140 Bruxelles

CANADA

Defence Scientific Information Service Department of National Defence Ottawa, Ontario K1A OZ2

DENMARK

Danish Defence Research Board Østerbrogades Kaserne Copenhagen Ø

FRANCE

O.N.E.R.A. (Direction)
29 Avenue de la Division Leclerc
92 Châtillon sous Bagneux

GERMANY

Zentralstelle für Luft- und Raumfahrtdokumentation und -information c/o Fachinformationszentrum Energie, Physik, Mathematik GmbH Kernforschungszentrum 7514 Eggenstein-Leopoldshafen 2

GREECE

Hellenic Air Force General Staff Research and Development Directorate Holargos, Athens, Greece

ICELAND

Director of Aviation c/o Flugrad Reykjavik

Microfiche or Photocopy

Information Service (NTIS) 5285 Port Royal Road

National Technical

Springfield Virginia 22161, USA ITALY

Aeronautica Militare
Ufficio del Delegato Nazionale all'AGARD
3, Piazzale Adenauer
Roma/EUR

LUXEMBOURG

See Belgium

NETHERLANDS

Netherlands Delegation to AGARD National Aerospace Laboratory, NLR P.O. Box 126

NORWAY

Norwegian Defence Research Establishment Main Library P.O. Box 25 N-2007 Kjeller

PORTUGAL

Direcção do Serviço de Material da Forca Aerea Rua da Escola Politecnica 42 Lisboa Attn: AGARD National Delegate

TURKEY

Department of Research and Development (ARGE) Ministry of National Defence, Ankara

UNITED KINGDOM

Defence Research Information Centre Station Square House St. Mary Cray Orpington, Kent BR5 3RE

UNITED STATES

National Aeronautics and Space Administration (NASA)
Langley Field, Virginia 23365
Attn: Report Distribution and Storage Unit

THE UNITED STATES NATIONAL DISTRIBUTION CENTRE (NASA) DOES NOT HOLD STOCKS OF AGARD PUBLICATIONS, AND APPLICATIONS FOR COPIES SHOULD BE MADE DIRECT TO THE NATIONAL TECHNICAL INFORMATION SERVICE (NTIS) AT THE ADDRESS BELOW.

PURCHASE AGENCIES

Microfiche

Space Documentation Service European Space Agency 10, rue Mario Nikis 75015 Paris, France Microfiche

Technology Reports Centre (DTI) Station Square House St. Mary Cray Orpington, Kent BR5 3RF England

Requests for microfiche or photocopies of AGARD documents should include the AGARD serial number, title, author or editor, and publication date. Requests to NTIS should include the NASA accession report number. Full bibliographical references and abstracts of AGARD publications are given in the following journals:

Scientific and Technical Aerospace Reports (STAR) published by NASA Scientific and Technical Information Facility
Post Office Box 8757
Baltimore/Washington International Airport Maryland 21240; USA

Government Reports Announcements (GRA) published by the National Technical Information Services, Springfield Virginia 22161, USA



Printed by Technical Editing and Reproduction Ltd Harford House, 7-9 Charlotte St, London WIP 1HD

ISBN 92-335-1323-1